

1

Cairo Governorate



Shoubra Educational Zone
St. Catherine Language School

Answer the following questions :

1 Choose the correct answer :

- 1 The multiplicative inverse of $\sqrt{3}$ is
 (a) $\sqrt{3}$ (b) $-\sqrt{3}$ (c) $\frac{\sqrt{3}}{3}$ (d) $\frac{3}{\sqrt{3}}$
- 2 The S.S. of the equation : $x^2 + 9 = 0$ in \mathbb{R} is
 (a) \emptyset (b) $\{3, -3\}$ (c) $\{3\}$ (d) $\{-3\}$
- 3 If $(k, 3)$ satisfies the relation : $y = 2x + 5$, then $k =$
 (a) 1 (b) -1 (c) 2 (d) 3
- 4 The volume of a cube is 27 cm^3 , then its lateral area = cm^2
 (a) 12 (b) 54 (c) 36 (d) 27
- 5 If $2x + 1 = 7$, then $3x =$
 (a) 6 (b) 9 (c) 12 (d) -12
- 6 The mean of the values : 3, 2, 4, 7 is
 (a) 2 (b) 3 (c) 7 (d) 4

2 Complete :

- 1 $3a^2b \times \dots = 12a^4b^2$
- 2 If the mode of the values : 6, 9, $x - 2$, 10 is 6, then $x =$
- 3 $[2, 7] - \{7\} =$
- 4 The slope of the straight line parallel to x -axis is
- 5 The median of : 24, 20, 11, 36, 40 is

3 [a] If $x = \sqrt{3} + \sqrt{2}$, $y = \frac{1}{\sqrt{3} + \sqrt{2}}$, find the value of : $\frac{x+y}{xy}$

[b] If the slope of the straight line passing through the two points A (4, k), B (3, 2) is 5, find the value of k

4 [a] Find in \mathbb{R} the S.S. of the inequality :

$-1 \leq 2x + 3 < 5$ and represent the S.S. on the number line.

[b] Simplify : $\sqrt{50} + 2\sqrt{18} - \sqrt{32} - 8\sqrt{\frac{1}{2}}$

- 5 [a] If the volume of a sphere is $\frac{500}{3} \pi \text{ cm}^3$, find the length of its diameter.

[b] Find the mean of the following frequency distribution :

Sets	5 –	15 –	25 –	35 –	45 –	Total
Frequency	4	5	6	3	2	20

2

Cairo Governorate



East Nasr City Educational Zone
Alson Lang, School

Answer the following questions :

1 Choose the correct answer :

1 $(\sqrt{5} + \sqrt{3})^2 (\sqrt{5} - \sqrt{3})^2 = \dots\dots\dots$

- (a) 2 (b) 3 (c) 4 (d) 8

2 The lower limit of a set is 4 and the upper limit is 8 , then its centre is

- (a) 8 (b) 6 (c) 4 (d) 2

3 $5 \in \dots\dots\dots$

- (a) $\{55\}$ (b) $]1, 5[$ (c) $]-\infty, 4]$ (d) $]-1, \infty[$

4 The mode of the values : 4 , 11 , 8 , 2 \mathcal{X} is 8 , then $\mathcal{X} = \dots\dots\dots$

- (a) 2 (b) 4 (c) 9 (d) 11

5 If the volume of a cube is 27 cm^3 , then the perimeter of one of its faces is cm.

- (a) 12 (b) 9 (c) 15 (d) 40

6 If $(-1, 5)$ satisfies the equation : $3\mathcal{X} + k y = 7$, then $k = \dots\dots\dots$

- (a) 2 (b) 0.8 (c) 3 (d) 5

2 Complete :

1 If the volume of a sphere is $\frac{9}{2} \pi \text{ cm}^3$, then its radius length is

2 $(2\mathcal{X} - 3)(3\mathcal{X} + 5) = 6\mathcal{X}^2 + \dots\dots\dots$

3 $[3, 4] - \{3, 5\} = \dots\dots\dots$

4 If $A(1, -2)$, $B(5, -4)$, then the slope of \overrightarrow{AB} is

5 The mean of the values : 7 , 11 , 21 , 10 and 16 is

3 [a] Simplify to the simplest form :

1 $6\sqrt[3]{16} + \sqrt[3]{54} - 6\sqrt[3]{\frac{1}{4}}$

2 $5\sqrt{2}(2\sqrt{2} + \sqrt{12})$

[b] If $\mathcal{X} = \frac{4}{\sqrt{7} - \sqrt{3}}$, $y = \sqrt{7} - \sqrt{3}$

, prove that : \mathcal{X} and y are conjugate numbers , then find the value of : $(\mathcal{X} + y)^2$

- 4 [a] Find the total area of a right circular cylinder of volume $72\pi \text{ cm}^3$ and height 8 cm.
(in terms of π)

[b] Find in \mathbb{R} the S.S. of :

1 $5 - 3x > 11$, then represent the solution set on the number line.

2 $8x^3 + 7 = 8$

- 5 [a] Graph the relation : $y = 3x + 1$ and if (2 , a) satisfies the relation , find the value of a

[b] Find the arithmetic mean of the following frequency distribution :

Sets	10 –	20 –	30 –	40 –	50 –	Total
Frequency	4	6	8	7	5	30

3 Cairo Governorate



Helwan Educational Zone
Saint Mary Lang. School

Answer the following questions :

1 Choose the correct answer :

- 1 The slope of the straight line passing through (4 , 1) , (6 , -3) is

(a) -1 (b) 0 (c) 2 (d) -2

- 2 The solution set of : $2x^3 + 54 = 0$ in \mathbb{R} is

(a) {3} (b) {-3} (c) {-3 , 3} (d) \emptyset

- 3 If (6 k , 4 k) satisfies the relation : $x + y = 50$, then k =

(a) 0 (b) 10 (c) 15 (d) 5

- 4 If the order of the median of some values is tenth , then the number of these values is

(a) 19 (b) 20 (c) 21 (d) 22

- 5 If $2x = 14$, then $6x =$

(a) 12 (b) 28 (c) 36 (d) 42

- 6 $]-1 , 3] \cup \{0 , -1\} =$

(a) $]0 , 3]$ (b) $]-1 , 3[$ (c) $[-1 , 3]$ (d) $[0 , 3]$

2 Complete each of the following :

- 1 The volume of the sphere whose radius length equals 14 cm. is ($\pi \approx \frac{22}{7}$)

- 2 If the mode of the values : 16 , 18 , $x - 3$, 14 is 16 , then $x =$

- 3 The median of the values : 29 , 24 , 30 , 23 , 18 , 28 is
- 4 If the slope of a straight line equals zero , then the line is parallel to
- 5 If the lower limit of a set is 28 and the upper limit of it is 32 , then the centre of the set equals

3 [a] If $X =]-\infty, 4]$ and $Y =]2, \infty[$, find using the number line :

- 1 $X \cap Y$ 2 $X \cup Y$ 3 \bar{X}

[b] A right circular cylinder whose volume is 704 cm^3 and its diameter length is 8 cm. , then find its height. $(\pi \approx \frac{22}{7})$

4 [a] Find the solution set in \mathbb{R} of the inequality :
 $-4 \leq 5x + 1 < 11$ and represent it on the number line.

[b] Simplify : $\sqrt[3]{54} + \sqrt[3]{50} + \sqrt[3]{16} + \sqrt[3]{8}$

5 [a] Graph the relation : $y = 2x + 2$

[b] Find the arithmetic mean of the following data :

Sets	20 –	22 –	24 –	26 –	Total
Frequency	16	12	14	8	50

4

Giza Governorate



El-Dokki Zone
Math. Inspection

Answer the following questions :

1 Choose the correct answer :

1 $2\sqrt{x} \times 3\sqrt{x} = \dots\dots\dots$ (where $x > 0$)

- (a) $6x^2$ (b) $6x$ (c) $5x^2$ (d) $5x$

2 If $(m, 2)$ satisfies the relation : $x + 2y = 7$, then $m = \dots\dots\dots$

- (a) -4 (b) -3 (c) 3 (d) 4

3 $(\sqrt{5} - 2) + (\sqrt{5} + 2) = \dots\dots\dots$

- (a) 1 (b) 2 (c) 4 (d) $2\sqrt{5}$

4 The volume of a cube is 27 cm^3 , then the area of one of its faces is cm^2

- (a) 3 (b) 6 (c) 9 (d) 12

5 If $a = \frac{2}{\sqrt{3}-1}$, $b = \sqrt{3}-1$, then $2ab = \dots\dots\dots$

- (a) 1 (b) 2 (c) 3 (d) 4

6 The arithmetic mean of the values : 7 , 4 , 9 , 10 , 11 , 16 , 13 is

- (a) 13 (b) 11 (c) 10 (d) 9

2 Complete the following :

- 1 Let A (1 , 3) , B (2 , 5) , then the slope of \overleftrightarrow{AB} equals
- 2 The S.S. of the equation : $(X + 3)(X - 1) = 0$ in \mathbb{R} is
- 3 The median of the values : 6 , 7 , 9 , 10 , 8 , 5 , 4 is
- 4 The mode of the values : 5 , 6 , 7 , 6 , 9 , 5 , 7 , 5 , 9 , 4 , 6 , 9 , 5 is
- 5 $[1 , 5] - \{1 , 5\} = \dots\dots\dots$

3 [a] If $X = [2 , 8]$, $Y =]-3 , 4[$, find each of the following using the number line :

- 1 $X \cap Y$
- 2 $X \cup Y$

[b] Find the S.S. of the inequality : $5X + 1 \geq 21$ in \mathbb{R} and represent the solution set on the number line.

4 [a] Find the value of : $\sqrt{20} + \sqrt{45} - \sqrt{80}$ (showing the steps of your answer)

[b] Find the volume of a right circular cylinder of height 10 cm. and its radius length is 7 cm.

5 [a] Represent graphically the relation : $y = 3 - X$

[b] Find the arithmetic mean of the following frequency distribution :

The set	0 –	10 –	20 –	30 –	40 –	Total
Frequency	4	5	6	3	2	20

5

Giza Governorate



6th October Directorate

Answer the following questions :

1 Choose the correct answer :

- 1 The S.S. of the equation : $X^2 + 5 = 0$ in \mathbb{R} is
 (a) 5 (b) $\{\sqrt{5} , -\sqrt{5}\}$ (c) $\{\sqrt{5}\}$ (d) \emptyset
- 2 If the point (a , 1) satisfies the relation : $X + y = 5$, then a =
 (a) -4 (b) 1 (c) 4 (d) 5
- 3 If four times a number is 48 , then third of this number is
 (a) 12 (b) 6 (c) 4 (d) 8
- 4 $[-1 , 5] -]-1 , 5[= \dots\dots\dots$
 (a) \emptyset (b) $\{-1 , 5\}$ (c) $[-1 , 5]$ (d) $]-1 , 5[$

- 5 The irrational number between 3 and 4 is
 (a) $\sqrt{17}$ (b) $\sqrt{6}$ (c) $\sqrt[3]{29}$ (d) 3.6
- 6 A cube the sum of its edge lengths is 48 cm. , then its volume is cm^3
 (a) 64 (b) 6 (c) 4 (d) 46

2 Complete :

- 1 If the lower limit of a set is 4 and its centre is 6 , then its upper limit is
- 2 If $\frac{1}{x} = \sqrt{5} - 2$, then $x = \dots\dots\dots$ (in its simplest form)
- 3 A sphere its diameter length is 6 cm. , then its volume is cm^3
- 4 If A (-1 , 4) , B (x , 2) and the slope of $\overrightarrow{AB} = -2$, then $x = \dots\dots\dots$
- 5 The S.S. of : $\sqrt{5} x \leq 5$ is in \mathbb{R}

- 3 [a] A right circular cylinder , its radius length equals its height and its volume is $216 \pi \text{ cm}^3$
 Find the height of the right cylinder.

[b] Find the S.S. in \mathbb{R} :

- 1 $5 > 2x - 3 > -1$ (represent it on the number line)
- 2 $(2x - 1)^3 = 125$

- 4 [a] If $X =]-\infty, 1]$ and $Y = [-2, 4[$, find :

- 1 $X \cap Y$ 2 $Y - X$ 3 \bar{X}

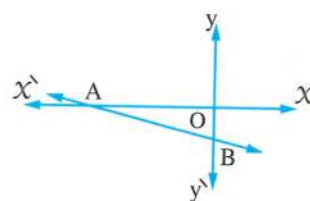
- [b] Simplify : $5\sqrt{8} + 2\sqrt[3]{2} - 2\sqrt{50} - \sqrt[3]{16}$

- [c] If $x = \sqrt{7} + \sqrt{4}$, $y = \frac{3}{x}$

- 1 Prove that : x and y are two conjugate numbers.
- 2 Find : $x^2 + 2xy + y^2$

- 5 [a] If the relation : $x + 4y = -4$ is represented in the opposite figure where A is the intersection point with x -axis and B is the intersection point with y -axis , then find :

- 1 The coordinates of A and B
- 2 The area of $\triangle ABO$ where O is the origin point.
- 3 The slope of \overrightarrow{AB}



[b] From the following frequency distribution :

Sets	5 -	15 -	25 -	35 -	45 -	Total
Frequency	7	10	12	13	k	50

- 1 Find k 2 Find the arithmetic mean.



Answer the following questions :

1 Choose the correct answer :

- 1 $\sqrt{4} \dots\dots\dots] - 2, \infty[$
 (a) \in (b) \notin (c) \subset (d) $\not\subset$
- 2 $\sqrt{\frac{x}{y}} = \dots\dots\dots$ (where $y > 0$)
 (a) $\frac{1}{y}\sqrt{x}$ (b) $\frac{1}{x}\sqrt{y}$ (c) $\frac{1}{y}\sqrt{xy}$ (d) $\frac{x}{y}$
- 3 The order of the median of the values : 4 , 5 , 6 , 7 and 8 is the
 (a) third. (b) fourth. (c) fifth. (d) sixth.
- 4 If $x = (-2)^4$, $y = -2^4$, then
 (a) $x = y$ (b) $x > y$ (c) $x < y$ (d) $x \leq y$
- 5 If $(2k, k)$ satisfies the relation : $y + 2x = 5$, then $k = \dots\dots\dots$
 (a) 5 (b) 4 (c) 2 (d) 1
- 6 If the mean of the values : 9 , 5 , 6 , x , 14 is 7 , then $x = \dots\dots\dots$
 (a) 3 (b) 2 (c) 1 (d) 5

2 Complete :

- 1 The additive inverse of the number $-5 + \sqrt{3}$ is
 2 If the mode of the values : 4 , 11 , 8 , $2x$ is 4 , then $x = \dots\dots\dots$
 3 The cube whose volume is 8 cm^3 , then the sum of all edge lengths is cm.
 4 If the lower limit of a set is 4 and the upper limit is 8 , then its centre is
 5 The straight line which represents the relation : $2x + 7y = 14$ intersects x -axis at the point (..... ,)
- 3 [a] If $x = \sqrt{7} - \sqrt{6}$, $y = \frac{1}{x}$, prove that : $(x + y)^2 = 28$
 [b] If $A(3, 4)$, $B(5, a)$ and the slope of $\overrightarrow{AB} = 3$, find the value of a
 [c] Find the lateral area of a right circular cylinder of volume $72\pi \text{ cm}^3$ and height 8 cm.

4 [a] Graph the relation : $y = 2 - x$

[b] Simplify : 1 $\sqrt{32} - 6\sqrt{\frac{1}{2}}$ 2 $\sqrt[3]{128} + \sqrt[3]{16}$

[c] If $X =]-\infty, 2[$ and $Y = [-1, 5]$, find using the number line :

1 $X \cap Y$

2 $X \cup Y$

3 \bar{X}

5 [a] Complete : The S.S. of the equation : $x^2 + 1 = 0$ in \mathbb{R} is

[b] Find in \mathbb{R} the S.S. of the inequality :

$5 - 3x > 11$, then represent the S.S. on the number line.

[c] Find the mean of the following data :

Sets	5 -	15 -	25 -	35 -	45 -	Total
Frequency	4	5	6	3	2	20

7 Alexandria Governorate



East Educational Zone
Math's Supervision

Answer the following questions :

1 Choose the correct answer :

1 The mode for the values : 3 , 5 , 3 , 4 , 3 is

- (a) 3 (b) 4 (c) 5 (d) 12

2 Let A (3 , 5) and B (5 , -1) , then the slope of \overleftrightarrow{AB} =

- (a) $-\frac{1}{3}$ (b) -3 (c) 3 (d) $\frac{1}{3}$

3 If the point (a , 1) satisfies the relation : $x + y = 5$, then a =

- (a) 1 (b) -4 (c) 4 (d) 5

4 The solution set of the equation : $x^2 + 9 = 0$ in \mathbb{R} is

- (a) \emptyset (b) $\{-3\}$ (c) $\{3\}$ (d) $\{3, -3\}$

5 $4.274 \approx$ (to the nearest $\frac{1}{10}$)

- (a) 4 (b) 4.2 (c) 4.3 (d) 4.27

6 The lower limit of a set is 4 and the upper limit is 8 , then its centre is

- (a) 2 (b) 4 (c) 6 (d) 8

2 Complete the following :

1 The surface area of a sphere of diameter length 14 cm. equals

2 $(\sqrt{8} + \sqrt{2})(\sqrt{8} - \sqrt{2}) =$

3 The conjugate of the number $\frac{2\sqrt{5} - 3\sqrt{2}}{\sqrt{2}}$ is

4 A cube whose volume is 8 cm^3 , then the sum of lengths of all its edges equals

5 The S.S. of the equation : $x(x^3 - 1) = 0$ in \mathbb{R} is

- 3 [a]** Find in the simplest form : $6\sqrt{\frac{1}{2}} + \frac{1}{3}\sqrt[3]{54} - \sqrt{18} - \sqrt[3]{2}$
- [b]** If $x = \sqrt{5} + \sqrt{2}$ and $y = \sqrt{5} - \sqrt{2}$, find the value of : $\frac{x+y}{xy-1}$
- 4 [a]** Find the S.S. in \mathbb{R} of the inequality : $2x + 1 \leq 7$, then represent it on the number line.
- [b]** Find the volume of the sphere whose diameter length is 4.2 cm. ($\pi = \frac{22}{7}$)
- 5 [a]** If the slope of \overleftrightarrow{AB} is 3 where $A = (3, 4)$, $B = (4, y)$, find the value of y
- [b]** Find the arithmetic mean of the following distribution :

Sets	4 -	8 -	12 -	16 -	20 -	Total
Frequency	2	4	8	6	4	24

8

El-Kalyoubia Governorate



Math Supervision

Answer the following questions :

1 Choose the correct answer :

- 1** The solution set of the equation : $x + 5 = 5$ in \mathbb{N} is
- (a) $\{0\}$ (b) $\{10\}$ (c) $\{-10\}$ (d) \emptyset
- 2** The rational number that lies between 0.2 , 0.3 is
- (a) 0.21 (b) 0.11 (c) 0.31 (d) 0.33
- 3** $\sqrt[3]{x^6} = \sqrt{\dots\dots\dots}$
- (a) x^3 (b) x^2 (c) x (d) x^4
- 4** If $(2, -5)$ satisfies the relation : $3x - y + c = 0$, then $c = \dots\dots\dots$
- (a) 1 (b) -1 (c) 11 (d) -11
- 5** If the arithmetic mean of the set of values : 18 , 23 , 29 , $2k - 1$, k is 18 , then $k = \dots\dots\dots$
- (a) 1 (b) 7 (c) 29 (d) 19
- 6** The median of the values : 34 , 23 , 25 , 40 , 22 , 4 is
- (a) 22 (b) 23 (c) 24 (d) 25

2 Complete :

- 1** $0.3 = \dots\dots\dots$ (in the form of $\frac{a}{b}$)
- 2** $\sqrt[3]{343} = \dots\dots\dots$
- 3** The slope of any line parallel to x -axis is

- 4 The mode is the common value in the set.
- 5 If the order of the median of some values is the fourth , then the number of the values is

3 [a] Find the solution set of : $5x - 3 < 2x + 9$ in \mathbb{R}

[b] Find the value of : $\sqrt{18} + \sqrt{54} - 3\sqrt{2} - \frac{1}{2}\sqrt{24}$

4 [a] The radius length of the base of a right circular cylinder is 4 cm. and its height is 9 cm.
Find the volume in terms of π

[b] If A (2 , -1) , B (10 , 3) and C (2 , 3) , find the slope of each of \overrightarrow{AB} and \overrightarrow{BC}

5 [a] Find : $[-1, 4] - [-3, 2[$ by using the number line.

[b] The following table shows the frequency distribution for the score of 50 students in an examination :

Sets	2 –	6 –	10 –	14 –	18 –	22 –	26 –	Total
Frequency	3	5	9	10	12	7	4	50

Find the mean of the students score.

9

El-Monofia Governorate

Shiben Elkom Directorate
Supervisor of Math

Answer the following questions :

1 Choose the correct answer :

- 1 The degree of the algebraic term $2x^3y^2$ is the
 (a) second. (b) third. (c) fourth. (d) fifth.
- 2 If the radius length of a sphere is 6 cm. , then its volume is cm^3
 (a) 6π (b) 36π (c) 72π (d) 288π
- 3 If x is a negative number , then the number is positive.
 (a) x^2 (b) x^3 (c) $2x$ (d) $\frac{1}{2}x$
- 4 $\sqrt{8} - 2\sqrt{2} = \dots\dots\dots$
 (a) 4 (b) 8 (c) zero (d) 2
- 5 If $|x| = 7$, then $x = \dots\dots\dots$
 (a) 7 (b) -7 (c) ± 7 (d) 8
- 6 The arithmetic mean for five values is 13 , then the sum of these values is
 (a) 70 (b) 56 (c) 65 (d) 13

2 Complete :

- 1 The slope of the straight line parallel to X -axis is
- 2 If the mode of the values : 18 , 11 , 4 , 2 X is 18 , then X =
- 3 If $(k, 2)$ represents the relation : $X + 2y = 5$, then k =
- 4 If the order of the median of some values is the seventh , then the number of these values is
- 5 The median of : $a + 2$, a , $a - 2$, $a - 1$, $a + 1$ is

3 [a] Simplify : $\sqrt{75} - 6\sqrt{\frac{1}{3}} - 3\sqrt{12}$

[b] If $A = [-2, 3]$, $B = [1, \infty[$, find using the number line :

1 $A \cap B$

2 $A \cup B$

[c] The diameter length of a cylinder is 7 cm. and its height is 10 cm. Find the lateral area of the cylinder.

4 [a] Represent the relation : $2X + y = 4$, then find the slope of the straight line representing this relation.

[b] If $X = \frac{1}{\sqrt{7} + \sqrt{6}}$, $y = \sqrt{7} + \sqrt{6}$, prove that : X and y are two conjugate numbers , then find : $(X + y)^2$ in the simplest form.

5 [a] Find the S.S. in \mathbb{R} for the inequality :

$\sqrt[3]{-8} \leq X + 1 \leq \sqrt{9}$, then represent it on the number line.

[b] From the following frequency distribution :

The set	10 –	20 –	30 –	40 –	50 –	Total
Frequency	10	20	25	k	15	100

Find : 1 The value of k

2 The arithmetic mean.

10 El-Gharbia Governorate



Central Mathematics Supervision
Official Language Schools

Answer the following questions :

1 Choose the correct answer :

1 The S.S. in \mathbb{R} for the equation : $X^3 + 27 = 0$ is

(a) $\{-3\}$

(b) $\{2\}$

(c) $\{3\}$

(d) \emptyset

- 2 If the mode of the values : 3 , 6 , $X + 1$, 6 , 3 , 1 is 6 , then $X = \dots\dots\dots$
 (a) 1 (b) 2 (c) 5 (d) 0
- 3 The cube whose volume is 64 cm^3 , the length of one of its edges is $\dots\dots\dots$ cm.
 (a) 8 (b) 3 (c) 16 (d) 4
- 4 If $X < \sqrt{51} < X + 1$, $X \in \mathbb{Z}$, then $X = \dots\dots\dots$
 (a) 8 (b) 7 (c) 6 (d) 5
- 5 $\sqrt{7} + \sqrt{7} = \dots\dots\dots$
 (a) $\sqrt{28}$ (b) 7 (c) 14 (d) $\sqrt{14}$
- 6 If the point (a , 1) satisfies the relation $X + y = 5$, then a = $\dots\dots\dots$
 (a) 1 (b) 2 (c) 5 (d) 4

2 Complete :

- 1 $\sqrt[3]{\dots\dots\dots} = -\sqrt{4}$
- 2 If the order of the median of some values is seventh , then the number of these values is $\dots\dots\dots$
- 3 If the lower limit of a set is 8 and the upper limit of the same set is 10 , then the centre of this set is $\dots\dots\dots$
- 4 $[-3, 6] \cap [3, 9] = \dots\dots\dots$
- 5 The slope of X -axis is $\dots\dots\dots$

3 [a] Reduce to the simplest form : $\frac{\sqrt{3}}{\sqrt{5}-\sqrt{3}} + \frac{\sqrt{5}}{\sqrt{5}+\sqrt{3}}$

[b] Prove that : $\sqrt[3]{128} + \sqrt[3]{16} - 2\sqrt[3]{54} = 0$

[c] Find in \mathbb{R} the solution set of the inequality : $-3 < 4X - 7 < 5$

- 4 [a] A right circular cylinder whose height is 10 cm. and its volume is $90\pi \text{ cm}^3$
 Find the length of the radius of its base.

- [b] If $X = [-3, 4]$, $Y =]1, \infty[$, find each of the following using the number line :

1 $X \cap Y$

2 $X \cup Y$

3 $X - Y$

5 [a] Simplify : $\sqrt{50} + \sqrt{18} - \sqrt{32}$

- [b] Find the arithmetic mean of the following frequency distribution :

Sets	5 -	15 -	25 -	35 -	45 -	Total
Frequency	4	5	6	3	2	20



Answer the following questions :

1 Choose the correct answer from those given :

1 $[3, 5] -]3, 5[= \dots\dots\dots$

- (a) \emptyset (b) $[3, 5]$ (c) $]3, 5[$ (d) $\{3, 5\}$

2 If the point $(a, 1)$ satisfies the relation : $x + y = 5$, then $a = \dots\dots\dots$

- (a) -4 (b) 1 (c) 4 (d) 5

3 If the lower limit of a set is 4 and the upper limit is 8 , then its centre is $\dots\dots\dots$

- (a) 2 (b) 4 (c) 6 (d) 8

4 If the radius length of a sphere is 6 cm. , then its volume is $\dots\dots\dots \text{cm}^3$

- (a) 6π (b) 36π (c) 72π (d) 288π

5 $\sqrt{100 - 36} = 10 - \dots\dots\dots$

- (a) -6 (b) 2 (c) 4 (d) 6

6 The intersection point of the ascending and descending cumulative curves determines the $\dots\dots\dots$ on the sets axis.

- (a) order of the median (b) median
(c) mean (d) mode

2 Complete each of the following :

1 $\sqrt{3}, \sqrt{12}, \sqrt{27}, \sqrt{48}, \dots\dots\dots$ (in the same pattern)

2 The slope of any straight line parallel to x -axis is $\dots\dots\dots$

3 If $n \in \mathbb{Z}_+$, $n < \sqrt{26} < n + 1$, then $n = \dots\dots\dots$

4 The arithmetic mean of the set of values : $3 - x, 5 + x, 4$ equals $\dots\dots\dots$

5 If the mode of the values : $4, 11, 8, 2x$ is 4 , then $x = \dots\dots\dots$

3 [a] Find the slope of \overleftrightarrow{AB} where $A(-1, 3)$ and $B(2, 5)$, is the point $C(8, 1) \in \overleftrightarrow{AB}$?

[b] If $x = \sqrt{7} + \sqrt{5}$, $xy = 2$, find the value of : $\frac{x+y}{xy}$

4 [a] Find the S.S. of the inequality : $-2 \leq 3x + 7 < 10$ in \mathbb{R} , then represent the interval of solution on the number line.

[b] Find the height of a right circular cylinder whose height is equal to its base radius length and its volume is $72\pi \text{ cm}^3$

5 [a] Simplify to the simplest form : $\sqrt{18} + \sqrt[3]{54} - 3\sqrt{2} - \frac{1}{2}\sqrt[3]{16}$

[b] Find the arithmetic mean of the following frequency distribution :

Sets	5 –	15 –	25 –	35 –	45 –	Total
Frequency	4	5	6	3	2	20

12

Ismailia Governorate


 Directorate of Education
Math's Supervision

Answer the following questions :

1 Choose the correct answer :

1 The slope of y-axis is

- (a) 0 (b) $\frac{1}{2}$ (c) undefined. (d) -1

2 The mean of 8 , 19 , 11 , 12 , 10 is

- (a) 12 (b) 15 (c) 20 (d) 11

3 The multiplicative inverse of $\frac{\sqrt{6}}{2}$ is

- (a) $-\frac{\sqrt{6}}{2}$ (b) $\frac{\sqrt{6}}{3}$ (c) $\frac{\sqrt{6}}{2}$ (d) $2\sqrt{6}$

4 If the age of Ali now is x years , then his age after 12 years is years.

- (a) $x + 12$ (b) $x - 12$ (c) $x + 15$ (d) $12x$

5 $\sqrt[3]{125} = \sqrt{\dots}$

- (a) 5 (b) 100 (c) 10 (d) 25

6 If the mode of : 7 , 10 , $k + 3$, 9 is 7 , then $k = \dots$

- (a) 3 (b) 10 (c) 4 (d) 9

2 Complete :

1 $4a^5 \times 5a^2 = \dots$

2 The median of : 15 , 7 , 16 , 9 , 4 , 20 is

3 $[2, 7] - \{2, 7\} = \dots$

4 If (3 , k) satisfies the relation : $2x + y = 10$, then $k = \dots$

5 $\{1, 2, 3\} \cap \{2, 4, 5\} = \dots$

3 [a] The area of a sphere is 616 cm^2 . Find its diameter length ($\pi = \frac{22}{7}$)

[b] Graph the relation : $y = 2x$

[c] Find the slope of \overrightarrow{AB} where A (-1 , 5) , B (2 , 6)

4 [a] Simplify : $\sqrt{72} + 2\sqrt{32} - 3\sqrt{2}$

[b] Find the S.S. in \mathbb{R} and represent it on the number line of : $1 < 3 - 2x \leq 11$

5 [a] If $A = [-2, 3]$, $B =]0, 5[$, using the number line find :

1 $A \cup B$

2 $A \cap B$

3 $A - B$

[b] From the following frequency distribution :

Sets	10 -	20 -	30 -	40 -	50 -	Total
Frequency	7	10	8	6	9	40

Find the mean.

13 Kafr El-Sheikh Governorate



Math Supervision

Answer the following questions :

1 Choose the correct answer :

1 The S.S. of the equation : $x(x^2 + 4) = 0$ in \mathbb{R} is

(a) $\{4\}$

(b) $\{0\}$

(c) $\{-4, 0\}$

(d) $\{4, -4\}$

2 The slope of the straight line which is perpendicular to x -axis is

(a) 1

(b) zero

(c) -1

(d) undefined.

3 If the arithmetic mean of the numbers : 5, 4, $x-3$, 6, 4 is 4, then $x =$

(a) 5

(b) 4

(c) 6

(d) 3

4 If the mode of the numbers : 5, 2, 4, $x-2$ is 5, then $x =$

(a) 4

(b) 6

(c) 7

(d) 5

5 If $-2x < 6$, then x

(a) < 6

(b) > -3

(c) > 6

(d) > -6

6 $\mathbb{Z} \cap \mathbb{N} =$

(a) $\{0\}$

(b) \mathbb{Z}_-

(c) \mathbb{N}

(d) \mathbb{Q}

2 Complete the following :

1 The multiplicative inverse of the number $\sqrt{10} - 3$ is

2 $[3, 5] -]3, 5[=$

3 The median of the numbers : 41, 19, 15, 30, 20 is

4 $\sqrt{18} - \sqrt{2} =$

5 If the slope of the straight line passing through $(2, k)$, $(3, -1)$ is 2, then $k =$

3 [a] Find the lateral area of the right circular cylinder of volume $150\pi \text{ cm}^3$ and height 6 cm.

[b] Find in the simplest form : $3\sqrt{2} + \sqrt{8} - \sqrt{18}$

4 [a] Find in \mathbb{R} the S.S. of the inequality : $x < 2x - 1 < x + 3$

[b] If $x = \sqrt{7} - \sqrt{5}$, $y = \frac{2}{x}$, find : $\frac{x+y}{xy}$ in the simplest form.

5 [a] If $(-1, 5)$ satisfies the relation : $3x + ky = 7$, then find k

[b] The following table shows the frequency of marks of 50 students :

Sets	2 –	6 –	10 –	14 –	ℓ –	22 –	26 –	Total
Frequency	3	6	8	10	11	k	4	50

Find : 1 The value of each of ℓ and k

2 The arithmetic mean for the marks of students.

14 Souhag Governorate



Akhmeem Educational Management
Private Future Generation Language School

Answer the following questions :

1 Choose the correct answer :

1 The simplest form of $(\sqrt{3} - \sqrt{2})(\sqrt{3} + \sqrt{2})$ is

(a) $\sqrt{3}$ (b) 1 (c) $\sqrt{2}$ (d) $2\sqrt{3}$

2 The volume of a cube is 64 cm^3 , then its edge length is cm.

(a) 4 (b) 8 (c) 16 (d) 64

3 The mean of the values : 34 , 23 , 25 , 40 , 22 , 12 is

(a) 22 (b) 23 (c) 24 (d) 26

4 If the point $(k, 1)$ satisfies the relation : $x + y = 5$, then $k =$

(a) 1 (b) -4 (c) 4 (d) 5

5 $(2\sqrt[3]{2})^3 =$

(a) 4 (b) 8 (c) 16 (d) 40

6 If the mode of the values : 4 , 11 , 8 , $2x$ is 4 , then $x =$

(a) 2 (b) 4 (c) 6 (d) 8

2 Complete :

1 The S.S. of : $x^2 + 9 = 0$ in \mathbb{R} is

2 $\sqrt{8} + \sqrt{18} - 3\sqrt{2} =$

Algebra and Statistics

- 3 The mode of : 3 , 5 , 3 , 4 , 3 is
- 4 $]-2, 2[\cup \{-2, 2\} = \dots\dots\dots$
- 5 If the volume of a sphere $= \frac{9}{2} \pi \text{ cm}^3$, then its diameter length equals cm.
-
- 3 [a] Find in the simplest form : $\sqrt{18} + \sqrt{32} - 3\sqrt{2} - \frac{1}{2}\sqrt{8}$
- [b] If $x = \sqrt{5} - \sqrt{2}$, $y = \frac{3}{\sqrt{5} - \sqrt{2}}$, prove that : x and y are two conjugate numbers.
-
- 4 [a] Represent graphically the linear relation : $y = 2 - x$
- [b] Find the solution set of the inequality :
 $-2 < 3x + 7 \leq 10$ in \mathbb{R} , then represent the S.S. on the number line.
-
- 5 [a] A right circular cylinder of radius length 4 cm. and its height is 9 cm.
 Find its volume in terms of π

- [b] Find the arithmetic mean of the following frequency distribution :

Sets	5 -	15 -	25 -	35 -	45 -	Total
Frequency	7	10	12	13	8	50

15 Aswan Governorate



Aswan Educational Directorate
Math's Supervision

Answer the following questions :

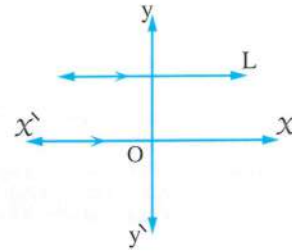
- 1 Choose the correct answer :
- 1 The multiplicative inverse of $\frac{\sqrt{3}}{5}$ is
- (a) $-\frac{\sqrt{3}}{5}$ (b) $\frac{5}{3}$ (c) $\frac{3}{5}$ (d) $\frac{5\sqrt{3}}{3}$
- 2 If $x = \sqrt{6} - \sqrt{2}$, $y = \frac{4}{x}$, then $y = \dots\dots\dots$
- (a) 4 (b) $\sqrt{6} + \sqrt{2}$ (c) 10 (d) $\sqrt{8}$
- 3 If the ordered pair $(2k, k)$ satisfies the relation : $y + 2x = 5$, then $k = \dots\dots\dots$
- (a) 1 (b) 2 (c) 3 (d) 4
- 4 If the lower boundary of a set is 4 and the upper boundary is 8, then its centre is
- (a) 2 (b) 4 (c) 6 (d) 8
- 5 $[1, 5] - \{1, 5\} = \dots\dots\dots$
- (a) $[2, 4]$ (b) $]1, 5[$ (c) $]0, \infty[$ (d) $]1, 5]$

6 In the opposite figure :

The slope of the straight line

L is

- (a) positive. (b) negative.
 (c) zero. (d) undefined.

**2 Complete each of the following :**

1 $\sqrt[3]{64} = \sqrt{\dots\dots\dots}$

2 In the relation : $y = 3x + 4$, if $y = 1$, then $x = \dots\dots\dots$ **3** If the mode of the values : 12 , 7 , $x + 1$, 7 , 12 is 7 , then $x = \dots\dots\dots$

4 $[-2, 5[\cap \mathbb{R}_+ = \dots\dots\dots$

5 The median of the set of values : 34 , 23 , 25 , 40 , 22 , 4 is**3 [a] Find in the simplest form the value of : $\sqrt[3]{128} + \sqrt[3]{16} + 2\sqrt[3]{-54}$**

[b] If $x = \sqrt{3} + 1$ and $y = \frac{2}{\sqrt{3} + 1}$

1 Prove that : x and y are conjugate.**2** Find the value of : $\frac{x+y}{xy}$ in the simplest form.**4 [a] If $X =]-1, 4]$ and $Y = [3, \infty[$, using the number line find each of the following :**

1 $X \cup Y$

2 $X - Y$

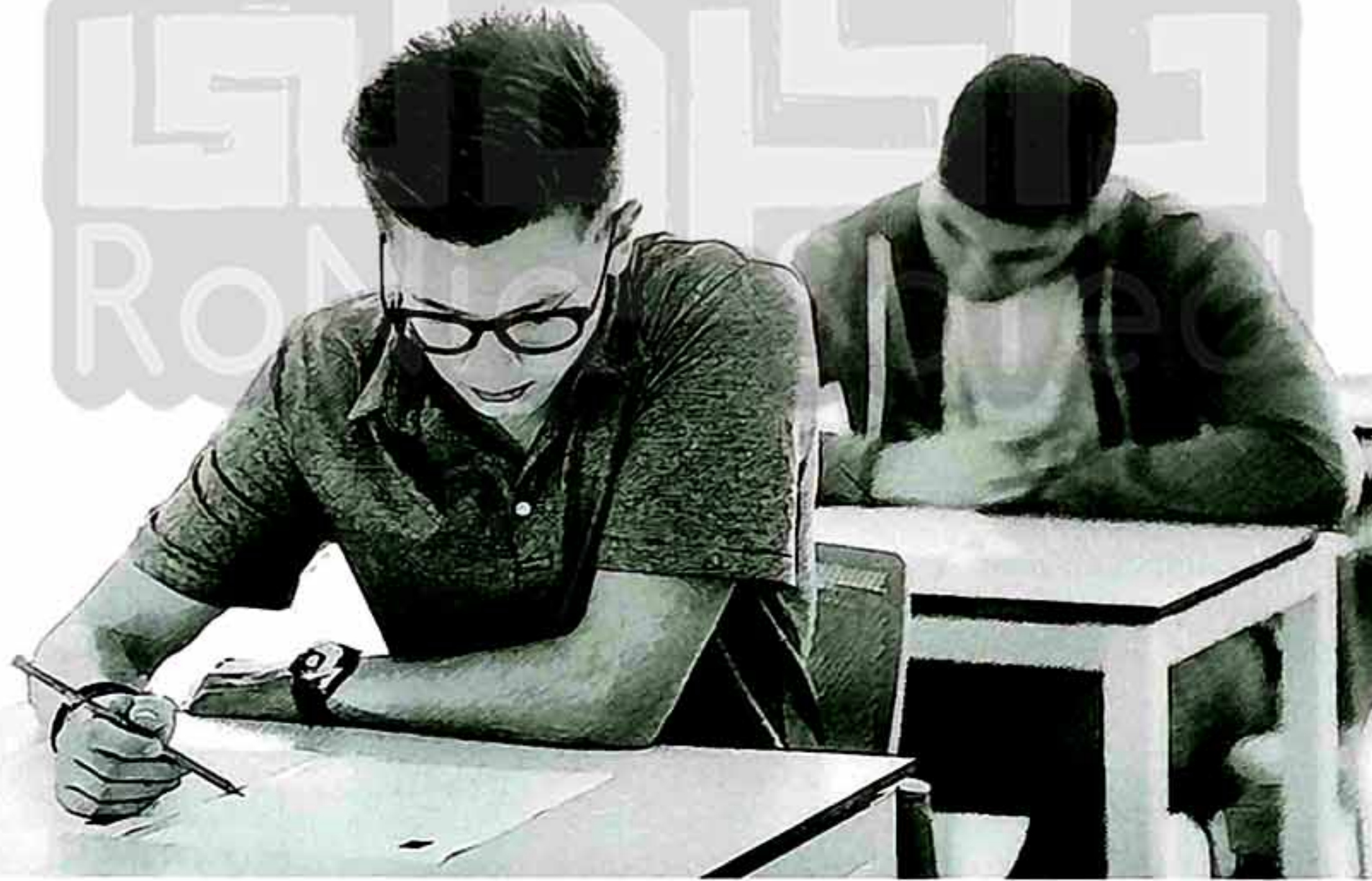
3 $X \cap Y$

[b] Find the S.S. in \mathbb{R} of : $-2 \leq 3x + 7 \leq 10$ and represent it on the number line.**5 [a] Represent graphically the relation $y = 2 - x$ and if $(-4, b)$ satisfies the relation , find the value of b** **[b] Find the arithmetic mean of the following frequency distribution :**

Sets of marks	5 –	15 –	25 –	35 –	45 –	Total
Number of pupils	7	10	12	13	8	50

Final Examinations

on Algebra and Statistics



Model Examinations of the School Book



on Algebra and Statistics

Model 1

Answer the following questions :

1 Complete the following :

- 1 The S.S. of the equation : $(x^2 + 3)(x^3 + 1) = 0$ is , $x \in \mathbb{R}$
- 2 If the lower boundary of a set is 10 and the upper boundary is x and its centre is 15 , then $x =$
- 3 $]-2, 2] \cup \{-2, 0\} =$
- 4 The cube whose volume is 8 cm^3 , then the sum of all its edge lengths = cm.
- 5 The multiplicative inverse of the number $(\sqrt{3} + \sqrt{2})$ is in the simplest form.

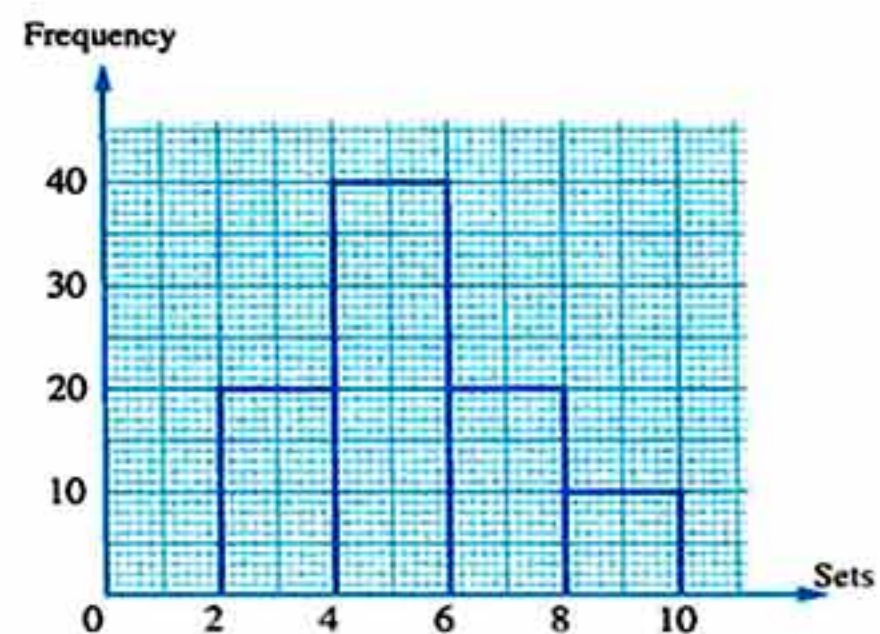
2 Choose the correct answer from the given ones :

- 1 If the radius length of a sphere is 6 cm. , then its volume is
 (a) $6 \pi \text{ cm}^3$ (b) $36 \pi \text{ cm}^3$ (c) $72 \pi \text{ cm}^3$ (d) $288 \pi \text{ cm}^3$
- 2 If the point $(a, 1)$ satisfies the relation $x + y = 5$, then $a =$
 (a) 1 (b) -4 (c) 4 (d) 5
- 3 $(2\sqrt[3]{2})^3 =$
 (a) 4 (b) 8 (c) 16 (d) 40
- 4 The median of the values : 34 , 23 , 25 , 40 , 22 , 4 is
 (a) 22 (b) 23 (c) 24 (d) 25
- 5 If the arithmetic mean of the values : 27 , 8 , 16 , 24 , 6 , k is 14 , then $k =$
 (a) 3 (b) 6 (c) 27 (d) 84

6 In the opposite figure :

The value of the mode =

- (a) 4 (b) 5
(c) 6 (d) 40



3 [a] Find the value of : $\sqrt{18} + \sqrt[3]{54} - 3\sqrt{2} - \frac{1}{2}\sqrt[3]{16}$

[b] If $x = \frac{3}{\sqrt{5}-\sqrt{2}}$ and $y = \sqrt{5}-\sqrt{2}$

, prove that : x and y are two conjugate numbers.

4 [a] The area of a square is 1089 cm^2 . Find the length of its diagonal.

[b] Find the S.S. of the inequality : $\frac{3x+1}{6} < x+1 < \frac{x+4}{2}$ in \mathbb{R}

, then represent it on the number line.

5 [a] The radius length of the base of a right circular cylinder is $4\sqrt{2} \text{ cm}$. and its height is 9 cm . Find its volume in terms of π and if its volume equals the volume of a sphere , find the radius length of the sphere.

[b] Find the arithmetic mean of the following frequency distribution :

The sets	5 -	15 -	25 -	35 -	45 -	Total
Frequency	7	10	12	13	8	50

Model 2

Answer the following questions :

1 Complete the following :

1 The additive inverse of the number : $-\sqrt{3}-\sqrt{5}$ is

2 $(\sqrt{8}+\sqrt{2})(\sqrt{8}-\sqrt{2}) = \dots\dots\dots$

3 The conjugate of the number $\frac{2\sqrt{5}-3\sqrt{2}}{\sqrt{2}}$ is

4 If the volume of a sphere is $\frac{9}{2}\pi \text{ cm}^3$, then its diameter length is cm.

5 $[3, 4] - \{3, 5\} = \dots\dots\dots$

2 Choose the correct answer from the given ones :

1 If the volume of a cube is 27 cm^3 , then the area of one of its faces is

(a) 3 cm^2

(b) 9 cm^2

(c) 36 cm^2

(d) 54 cm^2

2 If the mode of the values $4, 11, 8, 2x$ is 4 , then $x = \dots\dots\dots$

(a) 2

(b) 4

(c) 6

(d) 8

Algebra and Statistics

3 If the arithmetic mean of the values 18 , 23 , 29 , $2k - 1$, k is 18 , then $k = \dots\dots\dots$

- (a) 1 (b) 7 (c) 29 (d) 90

4 If the lower limit of a set is 4 and the upper limit is 8 , then its centre is $\dots\dots\dots$

- (a) 2 (b) 4 (c) 6 (d) 8

5 A right circular cylinder the radius length of its base is r cm. and its height equals its diameter length , then its volume = $\dots\dots\dots \text{cm}^3$

- (a) πr^3 (b) πr^2 (c) $2\pi r^3$ (d) $2r^3$

6 The solution set of the equation : $x(x^2 - 1) = 0$, $x \in \mathbb{R}$ is $\dots\dots\dots$

- (a) $\{0\}$ (b) $\{1\}$ (c) $\{-1\}$ (d) $\{0, -1, 1\}$

3 [a] Reduce to the simplest form : $\frac{\sqrt{3}}{\sqrt{5}-\sqrt{3}} + \frac{\sqrt{5}}{\sqrt{5}+\sqrt{3}}$

[b] Prove that : $\sqrt[3]{128} + \sqrt[3]{16} - 2\sqrt[3]{54} = 0$

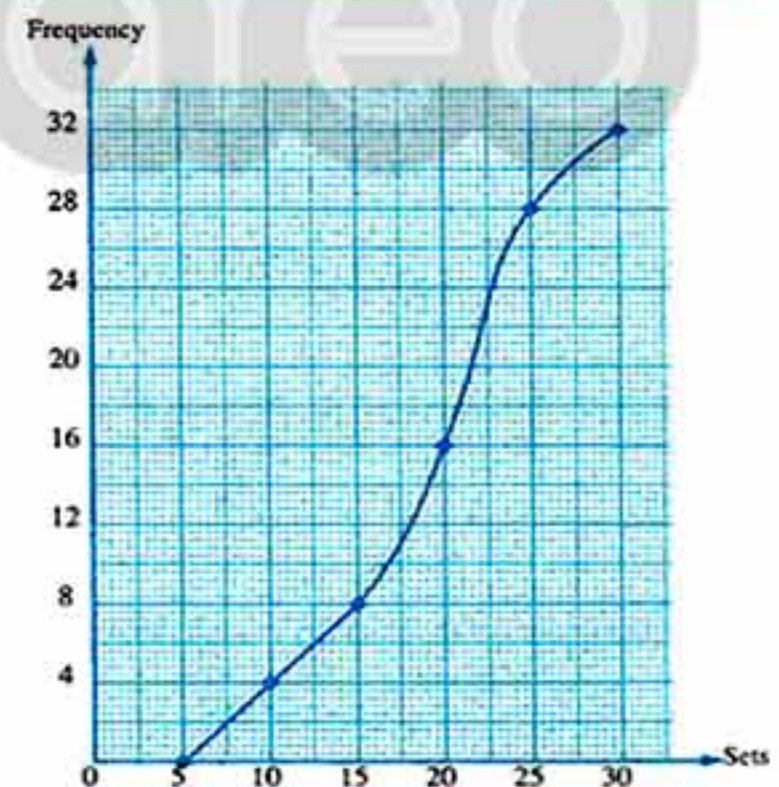
4 [a] Find the S.S. of the inequality : $-2 < 3x + 7 \leq 10$ in \mathbb{R} , then represent the interval of solution on the number line.

[b] If $x = \sqrt{2 + \sqrt{3}}$, find the value of : $x^4 - 2x^2 + 1$

5 [a] The opposite graph represents the marks of 32 pupils in an exam.

Complete :

The median mark = $\dots\dots\dots$



[b] Find the arithmetic mean of the following frequency distribution :

The sets	5 -	15 -	25 -	35 -	45 -	Total
Frequency	4	5	6	3	2	20

Model for the merge students

Answer the following questions :


1 Complete each of the following :

- 1 The conjugate of the number $\sqrt{3} + \sqrt{2}$ is
- 2 $\sqrt{18} + \sqrt{54} - 3\sqrt{2} = \dots\dots\dots$
- 3 The mode for the numbers : 3 , 5 , 3 , 4 , 3 is
- 4 The median of the values : 2 , 3 , 5 , 7 , 9 is
- 5 The solution set of the equation : $x^2 + 9 = 0$ in \mathbb{R} is

2 Choose the correct answer from those given :

- 1 The arithmetic mean for the values : 9 , 6 , 5 , 14 , 1 is
(a) 7 (b) 3 (c) 5 (d) 9
- 2 The simplest form of the expression : $(\sqrt{3} - \sqrt{2})(\sqrt{3} + \sqrt{2})$ is
(a) $\sqrt{3}$ (b) 1 (c) $\sqrt{2}$ (d) $2\sqrt{3}$
- 3 The additive inverse of the number $-\sqrt{5}$ is
(a) $\sqrt{5}$ (b) 5 (c) $\sqrt{2}$ (d) -5
- 4 $[3, 5] - \{3, 5\} = \dots\dots\dots$
(a) $]3, 5[$ (b) $[3, 5[$ (c) \emptyset (d) $]3, 5]$
- 5 A cube is of volume 64 cm^3 , then its edge length is cm.
(a) 4 (b) 8 (c) 16 (d) 64

3 Match from the column (A) to the suitable one from the column (B) :

(A)	(B)
1 The S.S. of the equation : $x^2 - 25 = 0$ in \mathbb{R} is	$[0, 2]$
2 $[-3, 2] \cap [0, 2] = \dots\dots\dots$	7
3 If the order of the median is fourth , then the number of values is	$\{5, -5\}$
4 $\sqrt{3}$ is a number.	
5 The S.S. of the inequality : $3 \leq x \leq 7$ on the number line is	irrational

Algebra and Statistics

4 Put (✓) for the correct statements and (✗) for the incorrect ones :

- 1 The arithmetic mean of a set of values = sum of values ÷ its number. ()
- 2 If $x = \sqrt{13} - \sqrt{7}$, $y = \sqrt{13} + \sqrt{7}$, then x , y are two conjugate numbers. ()
- 3 The irrational number $\sqrt{7}$ lies between 2 and 3 ()
- 4 $\sqrt{75} - 2\sqrt{27} = 7\sqrt{3}$ ()
- 5 The simplest form of the number $\frac{1}{\sqrt{5}}$ is $\frac{\sqrt{5}}{5}$ ()

5 [a] Complete : If the lower limit of a set is 4 and the upper limit is 8

, then its centre = $\frac{\dots + \dots}{2} = \dots$

[b] Complete the following table to obtain the arithmetic mean of the following frequency distribution :

Sets	5 -	15 -	25 -	35 -	45 -	Total
Frequency	7	10	12	13	8	50

Sets	The centre of the set « x »	Frequency « f »	$x \times f$
5 -	10	7	$10 \times 7 = 70$
15 -	20	10	$20 \times 10 = \dots$
25 -	.....	.....	$\dots \times 12 = \dots$
35 -	.....	.....	$\dots \times 13 = \dots$
45 -	.....	.....	$\dots \times 8 = \dots$
Total		50	.....

The arithmetic mean = $\frac{\sum (x \times f)}{\sum (f)} = \frac{\dots}{\dots} = \dots$

Some Schools Examinations



on Algebra and Statistics

1

Cairo Governorate

Near City Educ. Administration
St. Fatime Language School

Answer the following questions :

1 Choose the correct answer :

1 $[0, 5] \cup [3, 8[= \dots\dots\dots$

(a) $]3, 5]$

(b) $[3, 5]$

(c) $[0, 8]$

(d) $[0, 8[$

2 $\sqrt{12} - \sqrt{3} = \dots\dots\dots$

(a) 3

(b) $\sqrt{3}$

(c) $2\sqrt{3}$

(d) $3\sqrt{3}$

3 The S.S. in \mathbb{R} of the equation $x(x^2 - 1) = 0$ is $\dots\dots\dots$

(a) $\{0\}$

(b) $\{1\}$

(c) $\{-1\}$

(d) $\{0, -1, 1\}$

4 The arithmetic mean of the values 27, 8, 16, 24, 6, k is 14, then k = $\dots\dots\dots$

(a) 3

(b) 6

(c) 27

(d) 84

5 The additive inverse of the number $-\sqrt{5}$ is $\dots\dots\dots$

(a) $\sqrt{5}$

(b) 5

(c) $\sqrt{2}$

(d) -5

6 The radius length of a sphere is 6 cm., then its volume is $\dots\dots\dots$

(a) $6\pi \text{ cm}^3$

(b) $36\pi \text{ cm}^3$

(c) $72\pi \text{ cm}^3$

(d) $288\pi \text{ cm}^3$

2 Complete :

1 $[1, 5] \cap]-2, 3] = \dots\dots\dots$

2 The mode of the set of the values 3, 4, 7, 4, 2 is $\dots\dots\dots$ 3 The volume of the cuboid whose dimensions are $\sqrt{2}, \sqrt{3}, \sqrt{6}$ cm. is $\dots\dots\dots \text{ cm}^3$ 4 The S.S. in \mathbb{R} of $3 < 2x - 1 < 5$ as an interval is $\dots\dots\dots$ 5 The slope of any line parallel to x-axis is $\dots\dots\dots$ 3 [a] If $a = \sqrt{3} + \sqrt{2}$, $b = \sqrt{3} - \sqrt{2}$, find the value of : $a^2 - ab + b^2$ [b] Find the S.S. for each of the following inequalities in \mathbb{R} , in the form of an interval, then represent the S.S. on the number line :

1 $5x - 3 < 2x + 9$

2 $1 \leq 3 - 2x < 5$

4 [a] If $M = [2, \infty[$, $J =]-2, 3[$, find each of the following using the number line :

1 $M \cap J$

2 $M - J$

[b] Simplify : $\frac{\sqrt{3}}{\sqrt{5}-\sqrt{3}} + \frac{\sqrt{5}}{\sqrt{5}+\sqrt{3}}$

Algebra and Statistics

5 [a] Reduce to the simplest form : $2\sqrt{18} + \sqrt{50} + \frac{1}{3}\sqrt{162}$

[b] Find the arithmetic mean of the following frequency distribution :

The Set	5 -	15 -	25 -	35 -	45 -	Total
Frequency	4	5	6	3	2	20

2

Cairo Governorate

El-Maadi Zone
Directing Mathematics

Answer the following questions :

1 Choose the correct answer :

- The multiplicative inverse of $\frac{\sqrt{3}}{12}$ is
(a) $4\sqrt{3}$ (b) 2 (c) $2\sqrt{3}$ (d) $6\sqrt{3}$
- The conjugate of the number $2 - \sqrt{3}$ is
(a) $\sqrt{3} - 2$ (b) $2 - \sqrt{3}$ (c) $\sqrt{2} - 3$ (d) $2 + \sqrt{3}$
- The volume of the cuboid whose dimensions are $\sqrt{8}$, $\sqrt{3}$, $\sqrt{6}$ is
(a) 144 (b) 12 (c) $\sqrt{120}$ (d) 20
- The median for the values 7, 8, 9, 6 and 5 is
(a) 7 (b) 8 (c) 9 (d) 10
- $4^3 + 4^3 + 4^3 + 4^3 = \dots\dots\dots$
(a) 4^{20} (b) 4^4 (c) 4^{12} (d) 16^3
- If $(2k, k)$ satisfies the relation $2x + y = 15$, then $k = \dots\dots\dots$
(a) 1 (b) 2 (c) 3 (d) 4

2 Complete :

- $[2, 7] -]2, 7[= \dots\dots\dots$
- If the mode of the values 8, 11, 4, $2x$ is 4, then $x = \dots\dots\dots$
- $\mathbb{R} \cap \mathbb{R}_- = \dots\dots\dots$
- The slope of the straight line passing through the two points A (5, 3), B (2, 1) is
(a) 2 (b) -2 (c) 1 (d) -1
- The solution set in \mathbb{R} for $x^2 + 4 = 16$ is
(a) $\{4, -4\}$ (b) $\{2, -2\}$ (c) $\{4, 2, -2, -4\}$ (d) $\{2, -2, 4, -4\}$

3 [a] Put in the simplest form : $2\sqrt{8} + \sqrt{50} - \sqrt{32}$

[b] Find the solution set in \mathbb{R} for : $3x - 4 \leq 5$ and represent it on the number line.

4 [a] If $x = \frac{2}{\sqrt{7}-\sqrt{5}}$, $y = \sqrt{7}-\sqrt{5}$, find : $(x+y)^2$

[b] Represent graphically the relation : $y = 3x - 2$

5 [a] If the volume of a sphere equals $\frac{500}{3}\pi \text{ cm}^3$, find the length of its radius.

[b] The following table shows the frequency of marks of 50 students :

Sets	5 -	15 -	25 -	35 -	45 -	Total
Frequency	7	10	12	13	8	50

Find the mean of the marks of the students.

3

Cairo Governorate

El-Khalifa and El-Mokatam Zone
El-Helmia Exper. Leng. School



Answer the following questions :

1 Choose the correct answer :

- 1 The S.S. in \mathbb{R} for the equation : $x^3 + 8 = 0$ is
 (a) $\{4\}$ (b) $\{2\}$ (c) \emptyset (d) $\{-2\}$
- 2 If the mode of the values 3 , 5 , $x+1$, 5 , 3 , 1 is 5 , then $x =$
 (a) 5 (b) 4 (c) 3 (d) 6
- 3 The cube whose volume is 8 cm^3 , the area of one of its faces is cm^2
 (a) 4 (b) 8 (c) 16 (d) 64
- 4 If $x < \sqrt{15} < x+1$, $x \in \mathbb{Z}$, then $x =$
 (a) 3 (b) 4 (c) 5 (d) \emptyset
- 5 $\sqrt{3} + \sqrt{3} =$
 (a) -3 (b) $\sqrt{12}$ (c) 12 (d) 3
- 6 Which of the following ordered pairs satisfies the relation $2x + y = 5$?
 (a) (-1 , 3) (b) (1 , 3) (c) (3 , 1) (d) (2 , 2)

2 Complete :

- 1 $\sqrt[3]{\dots} = -\sqrt{9}$
- 2 If (-1 , 5) satisfies the relation $3x + ky = 7$, then $k =$
- 3 If the order of the median of some values is fifth , then the number of these values is
- 4 $[-2 , 5] \cap [3 , 7] =$
- 5 If the lower limit of a set is 4 and the upper limit of the same set is 10 , then the centre of this set is

Algebra and Statistics

- 3 [a] The volume of a sphere is $562.5 \pi \text{ cm}^3$, find its surface area.
 [b] If $x = \frac{4}{\sqrt{7} + \sqrt{3}}$, $y = \sqrt{7} + \sqrt{3}$, then find the numerical value of: $x^2 - 2xy + y^2$

- 4 [a] Find in \mathbb{R} the S.S. of: $-1 < 3x + 5 \leq 14$ and represent it on the number line.
 [b] Graph the relation: $2x + y = 1$
 [c] If $A =]-\infty, 3[$, $B = [-1, 5]$, find the following using the number line: 1 $A \cap B$ 2 $A - B$

- 5 [a] Find the slope of \overrightarrow{AB} where $A(-1, 3)$, $B(2, 5)$
 Is the point $C(8, 1) \in \overrightarrow{AB}$?
 [b] The following table shows the marks of 50 students in an examination:

Sets	5 -	15 -	25 -	35 -	45 -	Total
Frequency	7	10	12	13	8	50

Find the arithmetic mean of this frequency distribution.

4

Giza Governorate

El-Haram Directorate
Al Maarefa Exp. Language School

Answer the following questions:

- 1 Complete the following:
 1 $\sqrt[3]{4} = \sqrt[3]{\dots}$
 2 $] -3, 4[\cup \{-3\} = \dots$
 3 The mode of the values 7, 3, 8, 2, 3, 4, 3, 7 is
 4 If $(3k, 2k)$ satisfies the relation $2x - y + 2 = 12$, then $k = \dots$
 5 The slope of the straight line which passes through $A(2, -5)$, $B(3, -2)$ is

- 2 Choose the correct answer:

- 1 The multiplicative inverse of $\frac{\sqrt{2}}{4}$ is
 (a) $\sqrt{2}$ (b) $2\sqrt{2}$ (c) $4\sqrt{2}$ (d) 2
 2 $[2, 5] -]2, 5[= \dots$
 (a) $\{2, 5\}$ (b) $[2, 5[$ (c) $]2, 5]$ (d) \emptyset
 3 The mean of the values 4, 7, 3, 9, 2 is
 (a) 2 (b) 3 (c) 5 (d) 7
 4 The S.S. of the equation $x^2 + 36 = 0$ in \mathbb{R} is
 (a) $\{6\}$ (b) $\{-6\}$ (c) $\{6, -6\}$ (d) \emptyset

5 If $5x = 35$, then $2x + 1 = \dots\dots\dots$

- (a) 9 (b) 15 (c) 8 (d) 7

6 The order of the median of 5, 2, 3, 9, 7, 1, 6 is $\dots\dots\dots$

- (a) 9 (b) 5 (c) 4 (d) 2

3 [a] If $X = [-2, 4]$, $Y =]1, 6]$

, find by using the number line : 1 \bar{X} 2 $X \cap Y$ 3 $X - Y$

[b] Find in \mathbb{R} the S.S. of the inequality : $2x + 1 < 7$

4 [a] Find in the simplest form : $2\sqrt{18} + \sqrt{50} - \sqrt{162}$

[b] If $x = 3 + \sqrt{5}$, $y = \frac{4}{3 + \sqrt{5}}$

, prove that : x, y are conjugate numbers and find the value of : $x^2 - 2xy + y^2$

5 [a] A lead cuboid in which its dimensions are 77 cm., 24 cm. and 21 cm. It was melted to form a sphere. Find the radius length of that sphere ($\pi = \frac{22}{7}$)

[b] Find the median by using the ascending cumulative frequency curve :

Sets	5 -	15 -	25 -	35 -	45 -	Total
Frequency	4	5	6	3	2	20

5

Giza Governorate

Abo El-Nomros Educational Zone
Royal House Language Schools

Answer the following questions :

1 Choose the correct answer :

1 $(\sqrt{8} + \sqrt{2})^2 = \dots\dots\dots$

- (a) $\sqrt{10}$ (b) 10 (c) 18 (d) $\sqrt{18}$

2 The slope of any line // X-axis is $\dots\dots\dots$

- (a) 1 (b) undefined (c) -1 (d) zero

3 The multiplicative inverse of $(-2\frac{1}{3})$ is $\dots\dots\dots$

- (a) $\frac{1}{3}$ (b) $-\frac{7}{3}$ (c) $\frac{3}{7}$ (d) $-\frac{3}{7}$

4 The median of the values 34, 23, 25, 40, 22 is $\dots\dots\dots$

- (a) 22 (b) 23 (c) 24 (d) 25

5 $2a^2b \times \dots\dots\dots = 12a^3b$

- (a) $6ab$ (b) $6a$ (c) $6b$ (d) $6ab^2$

Algebra and Statistics

6 The mode of the values 8, 5, $x+3$, 5, 8 is 8, then $x = \dots\dots\dots$

- (a) 5 (b) 8 (c) 3 (d) -5

2 Complete :

1 The point (3, $\dots\dots\dots$) satisfies $2x + y = 10$

2 The mean of x , $2x$, $3x$ is $\dots\dots\dots$

3 If $2x = y$, then $x : y = \dots\dots\dots$; $\dots\dots\dots$

4 If the centre of a set is 4 and the upper limit of this set is 8, then the lower limit of this set is $\dots\dots\dots$

5 $[2, 3] - \{2, 3\} = \dots\dots\dots$

3 [a] If $x = \sqrt{7} - \sqrt{6}$, $y = \frac{1}{x}$, find the value of : $(x + y)^2$ (Show the steps).

[b] Find in \mathbb{R} the S.S. of : $-15 \leq 2x - 3 \leq 5$

[c] Simplify : $\sqrt[3]{54} + 8\sqrt[3]{\frac{1}{4}} + 5\sqrt[3]{16}$

4 [a] If $X =]-\infty, 5]$ and $Y =]1, 9[$, find by using the number line :

- 1 $X \cap Y$ 2 $X \cup Y$ 3 $X - Y$

[b] Find the slope of the straight line passing through the two points (2, 4), (4, 5)

5 [a] Find the S.S. in \mathbb{R} : $125x^3 - 7 = 20$

[b] Find the mode of the following distribution :

The Set	2 -	6 -	10 -	14 -	18 -	22 -	26 -	Total
Frequency	3	5	8	10	7	5	2	40

6 Alexandria Governorate

East Educational Zone
Maths Supervision



Answer the following questions :

1 Choose the correct answer from the given ones :

1 The arithmetic mean for the values : 9, 6, 5, 14, 1 is $\dots\dots\dots$

- (a) 7 (b) 3 (c) 5 (d) 9

2 The additive inverse of the number $-\sqrt{5}$ is $\dots\dots\dots$

- (a) $\sqrt{5}$ (b) 5 (c) $\sqrt{2}$ (d) -5

- 3 If the lower limit of a set is 4 and the upper limit is 8 , then its centre is
 (a) 2 (b) 4 (c) 6 (d) 8
- 4 The simplest form of the expression : $(\sqrt{3}-\sqrt{2})(\sqrt{3}+\sqrt{2})$ is
 (a) $\sqrt{3}$ (b) 1 (c) $\sqrt{2}$ (d) $2\sqrt{3}$
- 5 If the radius length of a sphere is 6 cm. , then its volume is $\pi \text{ cm}^3$
 (a) 6 (b) 36 (c) 72 (d) 288
- 6 $(2\sqrt[3]{2})^3 = \dots\dots\dots$
 (a) 4 (b) 8 (c) 16 (d) 40

2 Complete the following :

- 1 If $3^x = 1$, then $x = \dots\dots\dots$
- 2 The median of the values 2 , 9 , 3 , 7 , 5 is
 3 $]-2, 2] \cup \{-2, 0\} = \dots\dots\dots$
- 4 The mode for the numbers : 3 , 5 , 3 , 4 , 3 is
 5 A cube whose volume is 8 cm^3 , then the sum of lengths of all its edges is

- 3 [a] Find the value of : $\sqrt{18} + \sqrt[3]{54} - 3\sqrt{2} - \frac{1}{2}\sqrt[3]{16}$ (with steps).

[b] Represent graphically the relation : $y = 2 - x$

- 4 [a] Find the S.S. of the inequality : $-2 < 3x + 7 \leq 10$ in \mathbb{R} , then represent the interval of solution on the number line.

[b] Reduce to the simplest form : $\frac{\sqrt{3}}{\sqrt{5}-\sqrt{3}} + \frac{\sqrt{5}}{\sqrt{5}+\sqrt{3}}$ (with steps).

- 5 [a] If $(\sqrt{3})^x = (2\sqrt{2}-\sqrt{5})(2\sqrt{2}+\sqrt{5})$, then what is the value of x ?

[b] Find the arithmetic mean of the following frequency distribution :

The Sets	5 -	15 -	25 -	35 -	45 -	Total
Frequency	7	10	12	13	8	50

7

Alexandria Governorate

El-Montazah Educational Zone
Math's Supervision

Answer the following questions :

- 1 Choose the correct answer :

1 $\frac{3}{4} = \dots\dots\dots \%$

- (a) 70 (b) 50 (c) 75 (d) 25

Algebra and Statistics

- 2 $[2, 7] -]2, 7[= \dots\dots\dots$
 (a) $]2, 7]$ (b) $[2, 7[$ (c) $\{2, 7\}$ (d) $[2, \infty[$
- 3 The median of the values 3, 7, 2, 9, 5, 11 is $\dots\dots\dots$
 (a) 9 (b) 6 (c) 8 (d) 11
- 4 The remainder of subtracting $-5x$ from $3x$ equals $\dots\dots\dots$
 (a) $-2x$ (b) $8x$ (c) $2x$ (d) $8x^2$
- 5 If $(a, 4)$ satisfies the relation $x - y = -1$, then the value of a is $\dots\dots\dots$
 (a) $\sqrt{3}$ (b) 5 (c) 27 (d) 3
- 6 If the lower limit of a set is 4 and its centre is 9, then its upper limit is $\dots\dots\dots$
 (a) 36 (b) 5 (c) 13 (d) 14

2 Complete :

- 1 $\sqrt[3]{5} + \dots\dots\dots = \text{zero}$
- 2 $\mathbb{R}^+ \cup \mathbb{R}^- = \dots\dots\dots$
- 3 $\sqrt{a} + \sqrt{b}$ its conjugate is $\dots\dots\dots$ and their sum is $\dots\dots\dots$
- 4 The mode of the set of values 4, 5, $k+1$, 3 is 3, then $k = \dots\dots\dots$
- 5 The slope of the straight line parallel to x -axis equals $\dots\dots\dots$

3 [a] Simplify :

- 1 $\sqrt{32} - \sqrt{50} + 4\sqrt{\frac{1}{2}}$ 2 $\sqrt[3]{16} - \frac{1}{3}\sqrt[3]{54}$
- [b] If $x = \sqrt{7} + \sqrt{5}$, $y = \frac{2}{x}$, find the value of $\frac{x+y}{xy}$ in the simplest form.

4 [a] Find in \mathbb{R} the S.S. of the following inequality : $-1 \leq 3 - 2x < 5$,

then represent the interval of solution on the number line.

- [b] Find the height of a right circular cylinder whose height is equal to its base radius length and its volume is $72\pi \text{ cm}^3$

[c] Graph the relation : $x + 2y = 3$

5 [a] Find the slope of \overrightarrow{AB} , where $A(-1, 3)$ and $B(2, 5)$. Is the point $C(8, 1) \in \overrightarrow{AB}$?

[b] Find the mean of the following frequency data :

Sets	8 -	12 -	16 -	20 -	24 -	Total
Frequency	4	10	16	12	8	50

8

El-Kalyoubia Governorate

Directorate of Education
Inspection of Mathematics

Answer the following questions :

1 Choose the correct answer :

- 1 Let A (3 , 5) and B (5 , - 1) , then the slope of \overrightarrow{AB} =
 (a) $-\frac{1}{3}$ (b) - 3 (c) 3 (d) $\frac{1}{3}$
- 2 If the point (a , 1) satisfies the relation $x + y = 5$, then a =
 (a) 1 (b) - 4 (c) 4 (d) 5
- 3 The median of the values 34 , 23 , 25 , 40 , 22 , 4 is
 (a) 22 (b) 23 (c) 24 (d) 25
- 4 If the mode of the set of values 4 , 11 , 8 , 2 x is 4 , then x =
 (a) 2 (b) 4 (c) 6 (d) 8
- 5 The arithmetic mean for the values 9 , 6 , 5 , 14 , 1 is
 (a) 7 (b) 3 (c) 5 (d) 9
- 6 The mode for the values 3 , 5 , 3 , 4 , 3 is
 (a) 3 (b) 4 (c) 5 (d) 12

2 Complete :

- 1 25% = (in the form of $\frac{a}{b}$ in the simplest form)
- 2 The sum of the two square roots of the number $2\frac{1}{4}$ is
- 3 $|-0.75| = \dots\dots\dots$
- 4 $\sqrt[3]{-125} = \dots\dots\dots$
- 5 The multiplicative inverse for $(\sqrt{3} + \sqrt{2})$ in its simplest form is

3 [a] Find the value of x if : $x^3 - 1000 = 0$ [b] Find the circumference of the circle whose area is $3\pi \text{ cm}^2$ 4 [a] Find : $[2, \infty[\cap]-2, 3[$ (by using the number line)[b] Simplify the following to the simplest form : $(\sqrt{2} + 5)(3 + \sqrt{2})$ 5 [a] Graph the straight line that represents the relation : $x + 2y = 3$

[b] Find the arithmetic mean of the following frequency distribution :

The Set	5 -	15 -	25 -	35 -	45 -	Total
Frequency	4	5	6	3	2	20

9

El-Gharbia Governorate

Central Mathematics Supervision
Official Languages Schools

Answer the following questions :

1 Choose the correct answer :

- 1 If the radius length of a sphere is 6 cm. , then its volume is
(a) $6 \pi \text{ cm}^3$ (b) $36 \pi \text{ cm}^3$ (c) $72 \pi \text{ cm}^3$ (d) $288 \pi \text{ cm}^3$
- 2 If the point (a , 1) satisfies the relation $x + y = 5$, then a =
(a) 1 (b) -4 (c) 4 (d) 5
- 3 The median of the values 34 , 23 , 25 , 40 , 22 , 4 is
(a) 22 (b) 23 (c) 24 (d) 25
- 4 The solution set of the equation $x(x^2 - 1) = 0$, $x \in \mathbb{R}$ is
(a) {1} (b) {0} (c) {-1} (d) {0 , 1 , -1}
- 5 If the arithmetic mean of the values 18 , 21 , 29 , $2k + 1$, k is 18 , then k =
(a) 1 (b) 7 (c) 29 (d) 90
- 6 $\sqrt{3 \frac{3}{8}} = \frac{3}{2} \sqrt{\frac{\dots}{\dots}}$
(a) $\frac{3}{8}$ (b) $\frac{3}{2}$ (c) $\frac{27}{8}$ (d) $\frac{729}{64}$

2 Complete the following :

- 1 If the lower boundary of a set is 10 and the upper boundary is x and its centre is 15 , then $x = \dots\dots\dots$
- 2 The multiplicative inverse of the number $(\sqrt{3} + \sqrt{2})$ is (in the simplest form).
- 3 $[3 , 4] - \{3 , 5\} = \dots\dots\dots$
- 4 $\sqrt{64} - \sqrt[3]{64} = \dots\dots\dots$
- 5 The slope of the straight line passing through (2 , 3) and (5 , -1) is

3 [a] If $x = \sqrt{7} + \sqrt{5}$, $y = \frac{2}{\sqrt{7} + \sqrt{5}}$

- 1 Prove that : x and y are two conjugate numbers.
- 2 Find : xy , $(x + y)^2$

[b] Find in the simplest form : $\sqrt{12} + \sqrt[3]{54} - \sqrt{3} - \sqrt[3]{16}$ 4 [a] Graph the relation : $2x + 3y = 6$, if the straight line representing this relation intersects the x -axis at A and the y -axis at B , find the area of the triangle OAB where O is the origin point.[b] Find the solution set in \mathbb{R} : $8x^3 + 7 = 8$

5 [a] Find the solution set for the inequality : $2x - 1 \geq 5$ in \mathbb{R}

[b] Find the arithmetic mean of the following frequency distribution :

The Set	5 -	15 -	25 -	35 -	45 -	Total
Frequency	4	5	6	3	2	20

10

El-Dakahlia Governorate

Talkha Educational Directorate
A.M.D.L School

Answer the following questions :

1 Choose the correct answer from the given ones :

- 1 If $x = 3 + \sqrt{3}$ and $y = 3 - \sqrt{3}$, then $x - y = \dots\dots\dots$
 (a) $6\sqrt{3}$ (b) -6 (c) $\sqrt{6}$ (d) $2\sqrt{3}$
- 2 If the order of the median of a set of values is the fifth, then the number of these values is $\dots\dots\dots$
 (a) 6 (b) 10 (c) 11 (d) 9
- 3 The result of $(1 + \sqrt{5})(1 - \sqrt{5}) = \dots\dots\dots$
 (a) 2 (b) -4 (c) $-2\sqrt{5}$ (d) $2\sqrt{5}$
- 4 If A (3, -2), B (0, 4), then the slope of $\overline{AB} = \dots\dots\dots$
 (a) -2 (b) 2 (c) $\frac{1}{2}$ (d) $-\frac{1}{2}$
- 5 The mean of the values 2, 8, 6, 4 is $\dots\dots\dots$
 (a) 3 (b) 4 (c) 5 (d) 6
- 6 The multiplicative inverse of $\frac{\sqrt{3}}{6}$ is $\dots\dots\dots$
 (a) $-\frac{\sqrt{3}}{6}$ (b) $6\sqrt{3}$ (c) $2\sqrt{3}$ (d) $-2\sqrt{3}$

2 Complete the following :

- 1 $[-3, 7] - \{-3, 7\} = \dots\dots\dots$
- 2 The S.S. of the equation $x^2 + 9 = 0$ in \mathbb{R} is $\dots\dots\dots$
- 3 If the mode of 14, 8, $x + 5$, 8 and 14 is 8, then $x = \dots\dots\dots$
- 4 The slope of the straight line perpendicular to y-axis is $\dots\dots\dots$
- 5 If the volume of a sphere is $\frac{9}{2} \pi \text{ cm}^3$, then its radius length is $\dots\dots\dots$

3 [a] Find in the simplest form : $\sqrt{18} + \sqrt[3]{54} - 3\sqrt{2} - \frac{1}{2}\sqrt[3]{16}$

[b] If $X = [-3, 4]$, $Y =]1, \infty[$, find each of the following using the number line :

- 1 $X \cap Y$
- 2 $X - Y$

Algebra and Statistics

4 [a] Find in \mathbb{R} the S.S. of the inequality : $-7 \leq -3x + 1 < 13$ and represent it on the number line.

[b] If $x = \sqrt{6} + \sqrt{5}$, $y = \frac{1}{\sqrt{6} + \sqrt{5}}$:

1 Prove that : x , y are two conjugate numbers.

2 Find : the numerical value of $(x - y)^2$

5 [a] Graph the relation $y + 3x = 6$ and find the slope of the straight line.

[b] Find the arithmetic mean of the following frequency distribution :

Sets	10 -	20 -	30 -	40 -	50 -	Total
Frequency	5	15	20	25	10	75

11

Ismailia Governorate

Directorate of Education
Math's Supervision

Answer the following questions :

1 Choose the correct answer :

1 A (2, 5), B (3, 7), then the slope of \overrightarrow{AB} =

(a) $\frac{1}{2}$ (b) 2 (c) -2 (d) 5

2 $]3, 5[\cup \{3, 5\} = \dots\dots\dots$

(a) $]3, 5[$ (b) $\{3, 5\}$ (c) $[3, 5]$ (d) $[3, 5[$

3 The median of 4, 11, 8, 16, 9, 14 is

(a) 10 (b) 8 (c) 16 (d) 9

4 $\mathbb{Q} \cup \mathbb{Q} = \dots\dots\dots$

(a) \emptyset (b) \mathbb{R} (c) \mathbb{Z} (d) \mathbb{N}

5 The slope of x -axis is

(a) negative. (b) positive. (c) undefined. (d) zero.

6 $\mathbb{Z}^+ \cap \mathbb{Z}^- = \dots\dots\dots$

(a) zero (b) \emptyset (c) \mathbb{Z} (d) \mathbb{N}

2 Complete :

1 The mean of 12, 13, 10, 11, 14 is

2 The multiplicative inverse of $\sqrt{3} - \sqrt{2}$ is

3 The mode of 5, 11, 6, 2, 11, 7 is

4 If $\frac{x}{y} = 1$, then $x - y = \dots\dots\dots$

5 $\sqrt{5^2 - 4^2} = \dots\dots\dots$

3 [a] Find the S.S. in \mathbb{R} of : $8 \leq 3x + 2 \leq 17$ and represent it on the number line.

[b] Simplify : $\sqrt{72} + 3\sqrt{18} - 2\sqrt{\frac{1}{2}}$

4 [a] The volume of a cylinder is 1540 cm^3 , if its height is 10 cm. , find its diameter length. ($\pi = \frac{22}{7}$)

[b] Graph the relation : $y = -3$

5 [a] If $X = [-1, \infty[$, $Y =]-4, 3]$, using the number line find :

1 $X \cap Y$

2 $X \cup Y$

3 \bar{X}

[b] Find the mean of the following frequency distribution :

Sets	10 -	20 -	30 -	40 -	50 -	Total
Frequency	8	12	14	9	7	50

12

Damietta Governorate

Damietta Inspection of mathematics
Official Language Schools

Answer the following questions :

1 Choose the correct answer from those given :

1 $\sqrt{25} - \sqrt[3]{-125} = \dots\dots\dots$

(a) zero

(b) 10

(c) 5

(d) ± 5

2 The multiplicative inverse of $\frac{\sqrt{2}}{6}$ is $\dots\dots\dots$

(a) $\sqrt{2}$

(b) $2\sqrt{2}$

(c) $3\sqrt{6}$

(d) $3\sqrt{2}$

3 If the lower limit of a set is 4 and the upper limit is 8 , then its centre is $\dots\dots\dots$

(a) 8

(b) 6

(c) 4

(d) 2

4 The solution set of the equation $x^2 + 9 = 0$ in \mathbb{R} is $\dots\dots\dots$

(a) $\{3\}$

(b) $\{-3\}$

(c) \emptyset

(d) $\{-3, 3\}$

5 The arithmetic mean of the values $6 - k$, 12 , 18 and $k + 4$ is $\dots\dots\dots$

(a) 9

(b) 10

(c) 15

(d) 40

6 If the volume of a cube is 27 cm^3 , then the perimeter of one of its faces is $\dots\dots\dots \text{ cm}$.

(a) 12

(b) 9

(c) 36

(d) 3

2 Complete each of the following :

1 The slope of the straight line passing through the points (1 , -1) and (-3 , 7) is $\dots\dots\dots$

2 If the ordered pair (k , 2k) satisfies the relation $x + y = 15$, then $k = \dots\dots\dots$

3 The point of intersection of the ascending and descending cumulative frequency curves determines $\dots\dots\dots$ on the set-axis.

Algebra and Statistics

4 If three times of a number is 60 , then $\frac{1}{5}$ of this number equals

5 If the mode of the values 5 , 9 , 5 , $x + 3$, 9 is 9 , then $x =$

3 [a] If $x = \sqrt{5} + \sqrt{2}$, $y = \frac{3}{x}$, then find the value of : $\frac{x+y}{xy}$ in its simplest form.

[b] Find in \mathbb{R} the solution set of the inequality : $-3 \leq 4x - 7 \leq 5$

[c] A right circular cylinder whose height is 8 cm. and its volume is $72\pi \text{ cm}^3$
Find the length of the radius of its base.

4 [a] Find in its simplest form : $\sqrt{50} + \sqrt[3]{54} - 10\sqrt{\frac{1}{2}} - \sqrt[3]{16}$

[b] If $X = [-1, 5[$ and $Y = [2, \infty[$, find using the number line :

1 $X \cup Y$

2 $X \cap Y$

3 $X - Y$

5 [a] Find three ordered pairs satisfying the relation $2x + y = 7$, then represent it graphically.

[b] Find the arithmetic mean of the following frequency distribution :

Sets	5 -	15 -	25 -	35 -	45 -	Total
Frequency	4	5	6	3	2	20

13 Kafr El-Sheikh Governorate

Directorate of Education
Math's Supervision



Answer the following questions :

1 Choose the correct answer :

1 $(\sqrt{5} + \sqrt{3})^2 (\sqrt{5} - \sqrt{3})^2 =$

(a) 2

(b) 3

(c) 4

(d) 8

2 If the lower limit of a set is 4 and the upper limit is 8 , then its centre is

(a) 8

(b) 6

(c) 4

(d) 2

3 $2 \in$

(a) $]-1, \infty[$

(b) $]2, 5[$

(c) $]-\infty, 1[$

(d) $\{22\}$

4 If $(-1, 5)$ satisfies the relation $3x + ky = 7$, then $k =$

(a) 7

(b) 4

(c) 3

(d) 2

5 If the slope of the straight line $ax + by + 1 = 0$ is undefined , then =

(a) $a = b$

(b) $a = \text{zero}$

(c) $b = \text{zero}$

(d) $a = -b$

6 The intersection point of the ascending and descending cumulative frequency curves determines the on the sets axis.

(a) mode

(b) median

(c) mean

(d) centre

2 Complete :

- 1 The slope of the straight line passing through the two points (2, 6) and (-1, 3) equals
- 2 If the mode of the values 4, 11, 8, 2, x is 4, then $x =$
- 3 If the mean of the values 9, 6, 5, 14 is k , then $k =$
- 4 If the volume of a sphere $= 36\pi \text{ cm}^3$, then its diameter length = cm.
- 5 The degree of the algebraic term $3x^2y^2$ is

- 3 [a] Find the volume of the right circular cylinder whose diameter length of its base is 10 cm. and its height is 7 cm. ($\pi = \frac{22}{7}$)

[b] If $X =]-\infty, 5]$, $Y =]1, 7]$

, find by using the number line : 1 $X \cap Y$ 2 $X \cup Y$ 3 $Y - X$

[c] Find the S.S. of the equation : $8x^3 + 7 = 8$ in \mathbb{R}

- 4 [a] Represent graphically the relation $y = x + 2$ and if $(-4, a)$ satisfies the relation, find the value of a

[b] Simplify : $\sqrt{18} + \sqrt{50} - 2\sqrt{8}$

[c] Find in \mathbb{R} the S.S. of the inequality : $-8 < 3x + 1 \leq 4$

- 5 [a] If $x = \sqrt{3} + \sqrt{2}$, $y = \frac{1}{\sqrt{3} + \sqrt{2}}$, then find the value of : $\frac{x+y}{xy}$

[b] From the following frequency table with equal sets :

The Set	10 -	20 -	30 -	40 -	50 -	60 - 70	Total
Frequency	12	15	25	27	$k + 4$	4	100

1 Find the value of k

2 Calculate the median.

14

Souhag Governorate

Maths Supervision



Answer the following questions :

- 1 Choose the correct answer from those given :

- 1 If the mode of the values 5, 8, $6 + x$, 9 is 9, then $x =$
 (a) 5 (b) 6 (c) 3 (d) 8
- 2 The volume of a cube is 27 cm^3 , then the area of one of its faces is
 (a) 3 cm^2 (b) 9 cm^2 (c) 36 cm^2 (d) 54 cm^2

Algebra and Statistics

- 3 The slope of any line parallel to x -axis equals
- (a) 1 (b) undefined (c) -1 (d) zero
- 4 The multiplicative inverse of $\frac{2\sqrt{3}}{6}$ is
- (a) $\sqrt{2}$ (b) 6 (c) $\sqrt{3}$ (d) zero
- 5 $\mathbb{Q} \cup \mathbb{Q} = \dots$
- (a) \emptyset (b) 0 (c) \mathbb{R} (d) \mathbb{Z}
- 6 If $(-1, 5)$ satisfies the relation $3x + ky = 7$, then $k = \dots$
- (a) 5 (b) 6 (c) 2 (d) 7

2 Complete the following :

- 1 $[1, 5] - \{1, 5\} = \dots$
- 2 The S.S. of the equation : $x(x^2 - 1) = 0$ in \mathbb{R} is
- 3 $(2x^2y) \times (\dots) = 12x^3y$
- 4 The arithmetic mean of the values 8, 6, 3, 7, 1 is
- 5 $\sqrt[3]{64} + \sqrt{16} = \dots$

3 [a] Use the following table to find the relation between x, y :

x	-1	0	1	2
y	-1	1	3	5

- [b] Find the S.S. of the inequality : $-2 < 3x + 7 \leq 10$ in \mathbb{R} , then represent the interval of the S.S. on the number line.

4 [a] If $x = \sqrt{3} + \sqrt{2}$, $y = \frac{1}{\sqrt{3} + \sqrt{2}}$, then find the value of : $\frac{x+y}{xy}$

- [b] If $X =]-2, 1]$, $Y = [0, 3[$, use the number line to find :

- 1 $X \cap Y$ 2 $X \cup Y$ 3 $X - Y$

5 [a] Simplify : 1 $\sqrt{50} + \sqrt{18} - \sqrt{32}$ 2 $\sqrt[3]{54} + 8\sqrt[3]{\frac{1}{4}} + 5\sqrt[3]{16}$

- [b] Find the arithmetic mean of the following frequency distribution :

Sets	5 -	15 -	25 -	35 -	45 -	Total
Frequency	4	5	6	3	2	20

15

Luxor Governorate

Luxor Directorate
El-Salem Private Language School

Answer the following questions :

1 Choose the correct answer :

- 1 The smallest prime number is
(a) 0 (b) 1 (c) 2 (d) 3
- 2 If the mode of the set of values 4 , 11 , 8 , 2 x is 4 , then x =
(a) 2 (b) 4 (c) 6 (d) 8
- 3 If (2 , 5) satisfies the relation $3x + y = c$, then c =
(a) 1 (b) -1 (c) 11 (d) -11
- 4 The solution set of the equation $x^2 + 9 = 0$ in \mathbb{R} is
(a) \emptyset (b) $\{-3\}$ (c) $\{3\}$ (d) $\{3, -3\}$
- 5 The lower limit of a set is 4 and the upper limit is 8 , then its centre is
(a) 2 (b) 4 (c) 6 (d) 8
- 6 $4.274 \approx$ (to the nearest $\frac{1}{10}$)
(a) 4 (b) 4.2 (c) 4.3 (d) 4.27

2 Complete :

- 1 $[2, 7] - \{2, 7\} =$
- 2 The coefficient of the algebraic term $5a^3b^2$ is
- 3 The mean of 3 , 5 , 7 , 4 , 1 is
- 4 The slope of any line parallel to y-axis is
- 5 The median of the values 3 , 7 , 6 , 9 , 2 is

3 [a] Simplify to the simplest form : $\sqrt{27} - \sqrt{12} + \sqrt{300}$ [b] If $a = \sqrt{5} + \sqrt{3}$, $b = \sqrt{5} - \sqrt{3}$, find : $a^2 + 2ab + b^2$ 4 [a] Find the S.S. in \mathbb{R} of the inequality : $2x + 1 \leq 7$, then represent it on the number line.[b] Find the volume of the sphere whose diameter length is 4.2 cm. ($\pi = \frac{22}{7}$)5 [a] Let A (2 , -1) , B (10 , 3) and C (2 , 3). Find the slope of each of \overline{AB} and \overline{BC}

[b] Find the arithmetic mean of the following distribution :

Sets	5 -	15 -	25 -	35 -	45 -	Total
Frequency	4	5	6	3	2	20

Final
Examinations of

Algebra and
Statistics
2019



Some Schools Examinations on Algebra and Statistics

1

Cairo Governorate

Al-Nozha Administration
Al Farouk Islamic Language School

Answer the following questions :

1 Choose the correct answer from the given ones :

(1) The irrational number lies between 3 and 4 is

(a) 3.5

(b) $3\frac{1}{8}$ (c) $\sqrt{13}$ (d) $\sqrt{20}$ (2) $]-2, 1] \cap \{-2, 0, 1\} = \dots\dots\dots$ (a) $\{-2, 0, 1\}$ (b) $\{1\}$ (c) $\{0, 1\}$ (d) $[-2, 1]$ (3) If $x = \sqrt{3} + 2$ and $y = \sqrt{3} - 2$, then $(xy, x+y) = \dots\dots\dots$ (a) $(5, 2\sqrt{3})$ (b) $(5, 9)$ (c) $(1, 2\sqrt{3})$ (d) $(-1, 2\sqrt{3})$ (4) The line represented the relation : $3x + 8y = 24$ intersects the y-axis at the point(a) $(0, 8)$ (b) $(8, 0)$ (c) $(0, 3)$ (d) $(3, 0)$ (5) If the arithmetic mean of the set of the values $m, m+5, m+4, m+3$ is 9, then $m = \dots\dots\dots$

(a) 2

(b) 6

(c) 9

(d) 10

2 Complete each of the following :

(1) The slope of a straight line which passes through $(-3, 1)$ and $(-2, 5)$ is(2) If the mode of the set of the values $17, 8, k+5, 8, 17$ is 8, then $k = \dots\dots\dots$ (3) The multiplicative inverse of $\frac{\sqrt{13}-\sqrt{10}}{3}$ is (In the simplest form)(4) The radius length of a sphere whose volume is $\frac{9}{2}\pi \text{ cm}^3$ is cm.

(5) If the order of the median of the set of values is fifth, then the number of these values equals

3 [a] If $A =]-1, 3]$ and $B = [0, 5[$, then find :(1) $A \cap B$ (2) $B - A$ (3) $\mathbb{R}_+ \cap B$ [b] Simplify : $2\sqrt{27} + \frac{1}{3}\sqrt[3]{54} - \sqrt{75} + \sqrt[3]{16}$ 4 [a] Find in \mathbb{R} the S.S. of each of the following :(1) $\frac{(2x-1)^3}{3} = 9$ (2) $-1 < 3 - 2x \leq 5$ [b] If $x = 2\sqrt{3} - \sqrt{2}$ and $y = \sqrt{12} + \sqrt{2}$ Find the value of : $\frac{x+y}{xy+2}$

5 [a] If $(a, 3)$ and $(3, b)$ satisfies the relation $2x - y = 1$

(1) Find the value of a and b

(2) Find the slope of the straight line which represented the relation : $2x - y = 1$

[b] From the following frequency table :

Sets	10 -	20 -	30 -	40 -	50 -	60 -	Total
Frequency	10	17	20	32	$k + 2$	4	100

(1) Find the value of k

(2) Graph the frequency histogram , then find the mode.

2 Cairo Governorate

Western Cairo Educational Zone
Mathematics Inspection



Answer the following questions :

1 Choose the correct answer :


(1) If the volume of a cube is 64 cm^3 , then its edge length is

(a) 32 cm.

(b) 16 cm.

(c) 8 cm.

(d) 4 cm.

(2) The figure  represents the solution of the inequality in \mathbb{R}

(a) $x > -3$

(b) $x \geq -3$

(c) $x < -3$

(d) $x \leq -3$

(3) $\sqrt{3}(\sqrt{11} + \sqrt{3}) = \dots\dots\dots$

(a) $3\sqrt{11} + 2$

(b) $\sqrt{33} + 3$

(c) $11\sqrt{3} + 2$

(d) $2\sqrt{11} + 3$

(4) $(3, 2)$ does not satisfy the relation

(a) $y + x = 5$

(b) $3y - x = 3$

(c) $y + x = 7$

(d) $x - y = 1$

(5) The arithmetic mean of the values : 5 , 12 , 17 , 6 is

(a) 10

(b) 12

(c) 4

(d) 17

2 Complete each of the following :

(1) $\sqrt[3]{-64} + \sqrt{16} = \dots\dots\dots$

(2) If the mode of the set of the values : 15 , 9 , $x + 1$, 9 and 15 is 9 , then $x = \dots\dots\dots$

(3) The multiplicative inverse of the number $\frac{3}{\sqrt{3}}$ is $\frac{\dots\dots}{\sqrt{3}}$

(4) If the volume of a sphere = $\frac{9}{16} \pi \text{ cm}^3$, then its radius length = cm.

(5) If the order of the median of the set of values is fourth , then the number of these values is

Algebra and Statistics

3 [a] If $x = \sqrt{3} - 2$ and $y = \sqrt{3} + 2$, find the value of : $\left(\frac{x-y}{x+y}\right)^2$

[b] Simplify the following to the simplest form : $\sqrt{98} - \sqrt{128} - \sqrt{18} + 4\sqrt{2}$

4 [a] If $X =]-\infty, 2[$ and $Y = [-1, 5]$, find using the number line :

(1) $X \cap Y$

(2) $X - Y$

[b] Find the slope of the straight line passing through the two points : A (1, 3) and B (2, 3)

5 [a] Find the solution set for the following equation in \mathbb{R} , then represent the solution on the number line : $-8 \leq 3x + 1 \leq 4$

[b] Find the mean of the following frequency distribution :

Sets	5 -	15 -	25 -	35 -	45 -	Total
Frequency	3	10	12	10	5	40

3 Cairo Governorate

New Cairo Educational Zone
Akhnaton Egyptian College



Answer the following questions :

1 Complete the following :

(1) The S.S. of the equation : $x^3 - 27 = 0$ in \mathbb{R} is

(2) $[1, 5] - \{1, 5\} = \dots\dots\dots$

(3) The slope of the straight line which passes through the two points (2, -2) and (4, 2) is

(4) A cube whose volume is 8 cm^3 , the length of its edge = cm.

(5) The arithmetic mean of 10, 6, 5, 14, 15 is

2 Choose the correct answer :

(1) If $x = \sqrt{3} + 2$ and $y = \sqrt{3} - 2$, then $xy = \dots\dots\dots$

(a) 1

(b) -1

(c) -4

(d) 3

(2) $]-1, 3[\cap [-3, -1] = \dots\dots\dots$

(a) \emptyset

(b) $\{-3\}$

(c) $\{-1\}$

(d) $\{3\}$

(3) If the lower limit of a set is 6 and the upper limit is 10, then its centre is

(a) 4

(b) 6

(c) 10

(d) 8

(4) The multiplicative inverse of $\frac{\sqrt{5}}{10}$ is

- (a) $\sqrt{10}$ (b) $\sqrt{5}$ (c) $2\sqrt{5}$ (d) $-2\sqrt{5}$

(5) The S.S. of $x + 2 \geq 1$ in \mathbb{R} is

- (a) $[-1, \infty[$ (b) $] -1, \infty[$ (c) $[1, 2]$ (d) $[1, 2[$

[3] [a] Simplify : $\sqrt[3]{16} - \frac{1}{3}\sqrt[3]{54} + \sqrt[3]{-2}$

[b] Find the S.S. of : $-2 < 3x + 7 \leq 10$ in \mathbb{R} , then represent the interval of the solution set on the number line.

[4] [a] If $x = \sqrt{5} + \sqrt{2}$ and $y = \sqrt{5} - \sqrt{2}$, then find the value of : $\frac{x+y}{x-y-1}$

[b] If $X = [-2, 1]$ and $Y = [0, \infty[$ Find :

- (1) $X \cap Y$ (2) $X \cup Y$ (3) $Y - X$

[5] [a] Find the arithmetic mean of the following frequency distribution :

Sets	5 -	15 -	25 -	35 -	45 -	Total
Frequency	4	5	6	3	2	20

[b] Represent graphically the relation : $2y - x = 2$

4 Giza Governorate

Al-Agoza Directorate
Supervision of math.



Answer the following questions :

[1] Complete :

- (1) The S.S. of the equation $x^2 + 9 = 0$ in \mathbb{R} is
- (2) $\sqrt{16} = \sqrt[3]{\dots}$
- (3) The multiplicative inverse of the number $2\sqrt{3}$ is
- (4) $\{8, 9, 10\} \cap]8, 10[= \dots$
- (5) The length of the edge of a cube of volume $15 \frac{5}{8} \text{ cm}^3$ is

[2] Choose the correct answer :

- (1) The mean of the set of numbers : 5, 12, 17, 6 is
- (a) 40 (b) 20 (c) 5 (d) 10
- (2) The S.S. of the equation : $x^2 - 1 = 8$ in \mathbb{R} is
- (a) \emptyset (b) $\{3\}$ (c) $\{-3\}$ (d) $\{-3, 3\}$

Algebra and Statistics

(3) The conjugate of $\frac{1}{\sqrt{3}-\sqrt{2}}$ is

- (a) $\sqrt{3}-\sqrt{2}$ (b) $3-\sqrt{2}$ (c) $3+\sqrt{2}$ (d) $\sqrt{3}+\sqrt{2}$

(4) The value of b that makes $(-2, 3)$ satisfies the relation : $3x + by = 3$ is

- (a) 3 (b) 2 (c) 1 (d) -3

(5) If the mode of the values : 5, $x+3$, 9, 4 is 9, then $x =$

- (a) 5 (b) 4 (c) 6 (d) 3

[3] [a] Represent graphically the relation : $y = 2x - 3$

[b] If $X =]-\infty, 2]$ and $Y = [-1, 8]$, using the number line, find :

- (1) $X \cup Y$ (2) $X - Y$ (3) $X \cap Y$

[4] [a] Simplify :

- (1) $\sqrt{50} + \sqrt{18} - \sqrt{32}$ (2) $\sqrt[3]{54} + 8\sqrt[3]{\frac{1}{4}} + 5\sqrt[3]{16}$

[b] Find the slope of the straight line passing through the two points : A (5, -3) and B (6, 2)

[5] [a] Write two ordered pairs satisfying the relation : $y = x + 1$

[b] Find the arithmetic mean of the following frequency distributive :

Sets	10 -	20 -	30 -	40 -	50 -	Total
Frequency	10	20	25	30	15	100

5

Giza Governorate

El-Haram Educational Zone
Pyramids Language School



Answer the following questions :

[1] Complete the following :

- (1) $\sqrt[3]{64} = \sqrt{\dots}$
 (2) If $a = \sqrt{5} - 2$, $b = \sqrt{5} + 2$, then $a^2 b^2 = \dots$
 (3) The S.S. of the equation $x^2 + 5 = 0$ in \mathbb{R} is
 (4) $[-1, 5] \cap [3, 7] = \dots$
 (5) If $a^2 + b^2 = 25$ and $ab = 5$, then $\frac{a}{b} + \frac{b}{a} = \dots$

2 Choose the correct answer :

(1) $(\sqrt{2} + \sqrt{8})^2 = \dots\dots\dots$

(a) 18

(b) $\sqrt{10}$

(c) 4

(d) 10

(2) The sum of the real numbers of the interval $[-150, 150]$ is $\dots\dots\dots$

(a) 300

(b) -300

(c) zero

(d) 150

(3) The volume of a cuboid whose dimensions $\sqrt{2}$ cm. , $\sqrt{3}$ cm. , $\sqrt{6}$ cm. is $\dots\dots\dots$

(a) 6 cm^3

(b) 36 cm^3

(c) $6\sqrt{6} \text{ cm}^3$

(d) $18\sqrt{2} \text{ cm}^3$

(4) $\sqrt{(10)^2 - (6)^2} = \dots\dots\dots$

(a) 4

(b) 8

(c) ± 4

(d) ± 8

(5) $\sqrt[3]{3\sqrt{3}} = \dots\dots\dots$

(a) 3

(b) $\frac{1}{2}$

(c) $\sqrt[3]{3}$

(d) $\sqrt{3}$

3 [a] Simplify the following :

(1) $6\sqrt{\frac{5}{2}} + 20\sqrt{\frac{2}{5}}$

(2) $4\sqrt[3]{\frac{1}{2}} + 3\sqrt[3]{32} - \sqrt[3]{4}$

[b] Find the S.S. in \mathbb{R} : $(x-1)^2 = 4$

4 [a] If $(3, 2)$ satisfies the relation $x + 2y = m$, then find the value of m

[b] Find the slope of the straight line passes through the two points $(3, 5)$ and $(4, 7)$

[c] Represent graphically : $y = x + 2$

5 [a] Find the median of : 28 , 25 , 24 , 26 , 27

[b] Find the arithmetic mean of the following frequency distribution :

Sets	10 -	20 -	30 -	40 -	50 -	Sum
Frequency	4	6	8	7	5	30

6 Alexandria Governorate

Middle Educational Zone
Math's Supervision



Answer the following questions :

1 Complete each of the following :

(1) If $3^x = 1$, then $x = \dots\dots\dots$

(2) The S.S. of the equation : $x(x^3 - 1) = 0$ in \mathbb{R} is $\dots\dots\dots$

Algebra and Statistics

(3) $]5, 7[\cup \{5, 7\} = \dots\dots\dots$

(4) If the arithmetic mean of the values : 9 , 6 , 5 , 14 , k is 7 , then k =

(5) If the slope of the straight line : $kx + 2y = 5$ is zero , then k =**2** Choose the correct answer from the given ones :

(1) $(2\sqrt[3]{2})^3 = \dots\dots\dots$

(a) 4

(b) 8

(c) 16

(d) 40

(2) If the volume of a cube is 27 cm^3 , then the area of its face is cm^2

(a) 3

(b) 9

(c) 36

(d) 54

(3) If the order of the median of a set of values is the fourth , then the number of values is

(a) 3

(b) 5

(c) 7

(d) 9

(4) If the mode of the set of values : 5 , 9 , 5 , $x - 2$, 9 is 9 , then $x = \dots\dots\dots$

(a) 5

(b) 57

(c) 9

(d) 11

(5) If $(-1, 5)$ satisfies the relation : $3x + ky = 7$, then k =

(a) 2

(b) -2

(c) 1

(d) 10

3 [a] Find the value of : $\sqrt{18} + \sqrt[3]{54} - 3\sqrt{2} - \frac{1}{2}\sqrt[3]{16}$

[b] If $x = \sqrt{5} + \sqrt{2}$ and $y = \sqrt{5} - \sqrt{2}$, find the value of : $\frac{x+y}{x-y-1}$

4 [a] Write in the form of an interval the S.S. of the inequality : $x + 4 \geq 2x - 3 > x + 1$

[b] Represent graphically the relation : $y = 2 - x$

5 [a] The volume of a sphere is $\frac{99000}{7} \text{ cm}^3$. Calculate its radius length.

$(\pi = \frac{22}{7})$

[b] Find the arithmetic mean of the following frequency distribution :

Sets	5 -	15 -	25 -	35 -	45 -	Total
Frequency	7	10	12	13	8	50

7

Alexandria Governorate

El-Montazah Educational Zone
Math's Supervision

Answer the following questions :

1 Complete each of the following :(1) The multiplicative inverse for $-\frac{\sqrt{2}}{6}$ is(2) If $5x - 3y = 0$, then $x : y = \dots\dots\dots$:

72

- (3) The slope of any line parallel to X-axis =
- (4) $\sqrt{5} + \sqrt{2}$ its conjugate is and their product is
- (5) If $(-1, 5)$ satisfies the relation $3x + ky = 7$, then $k = \dots\dots\dots$

2] Choose the correct answer :

- (1) If $|a| = 5$, then $a = \dots\dots\dots$
- (a) 5 (b) -5 (c) ± 5 (d) $\sqrt{5}$
- (2) The order of the median of the set of values : 4, 5, 6, 7, 8 is
- (a) third. (b) fourth. (c) fifth. (d) sixth.
- (3) The S.S. of the inequality $-2x \geq 6$ in \mathbb{R} is
- (a) $]-\infty, -3[$ (b) $]-\infty, -3]$ (c) $[-3, \infty[$ (d) $[-3, \infty[$
- (4) $\{8, 9, 10\} -]8, 10[= \dots\dots\dots$
- (a) \emptyset (b) $\{9\}$ (c) \mathbb{N} (d) $\{8, 10\}$
- (5) The mode of the set of values : 5, 9, 5, $x-2$, 9 is 9, then $x = \dots\dots\dots$
- (a) 5 (b) 57 (c) 9 (d) 11

3] [a] Find in the simplest form : $2\sqrt{18} + \sqrt{50} + \frac{1}{3}\sqrt{162}$

[b] If $a - b = 2\sqrt{7}$, then find the value of : $a(a - b)^2 - b(a - b)^2$

[c] Find the slope of line \overline{AB} , where A $(-1, 3)$ and B $(2, 5)$ Is the point C $(8, 1) \in \overline{AB}$?

4] [a] Find the S.S. of the inequality : $-1 < 2x - 3 \leq 5$ in \mathbb{R} and represent the interval of solution on the number line.

[b] Find the lateral area for right circular cylinder of volume 924 cm^3

, and its height 6 cm.

$$\left(\pi = \frac{22}{7}\right)$$

5] [a] If $(\sqrt{3})^x = (2\sqrt{2} - \sqrt{5})(2\sqrt{2} + \sqrt{5})$, then what is the value of x ?

[b] By using the following distribution :

Sets	5 -	15 -	25 -	35 -	45 -	Total
Frequency	3	10	$k - 2$	10	5	40

- (1) Find the value of k
- (2) Find the arithmetic mean.

8 El-Kalyoubia Governorate

Mathematics Inspection



Answer the following questions :

1 Choose the correct answer :

(1) $\mathbb{Q} \cap \mathbb{Q} = \dots\dots\dots$

- (a) \mathbb{R} (b) \mathbb{R}_+ (c) \mathbb{R}_- (d) \emptyset

(2) The S.S. of the equation : $x^3 + 27 = 0$ in \mathbb{R} is

- (a) $\{3\}$ (b) $\{-3\}$ (c) \emptyset (d) $\{3\sqrt{3}, -3\sqrt{3}\}$

(3) $\{x : x \in \mathbb{R}, x < 1\} = \dots\dots\dots$

- (a) $\{0, -1, -2\}$ (b) $]-\infty, 1]$ (c) $]-\infty, 1[$ (d) $]1, \infty[$

(4) The mode of values : 3, 5, 3, 6, 5, 3, 7 is

- (a) 3 (b) 5 (c) 7 (d) 6

(5) The arithmetic mean of the values : 6, 19, 32, 25, 8 is

- (a) 90 (b) 32 (c) 18 (d) 6

2 Complete the following :

(1) If $3^x = 1$, then $x = \dots\dots\dots$ (2) The conjugate of the number $\frac{4}{\sqrt{7}-\sqrt{3}}$ is(3) The total area of a cube of edge length 4 cm. is cm^2 (4) If the point (6, a) lies on the straight line whose equation is $x + y = 3$, then $a = \dots\dots\dots$

(5) The median of the set of the values : 2, 9, 3, 7, 5 is

3 [a] If $x = \sqrt{5} + \sqrt{2}$ and $y = \sqrt{5} - \sqrt{2}$ Find the value of : $\frac{x+y}{x-y+1}$ [b] If $X = [-1, 2]$ and $Y = [1, \infty[$ Find :

- (1) $X \cap Y$ (2) $X \cup Y$

4 [a] Find the S.S. of the inequality : $7 \geq 2x + 1 > 3$

[b] The radius length of the base of a right cylinder is $4\sqrt{2}$ cm. and its height is 9 cm.
Find its volume in terms of π

5 [a] Find the slope of \overrightarrow{AB} where A (2 , -1) and B (-1 , 3) , then draw \overrightarrow{AB} on 2-dimensions coordinate.

[b] Find the arithmetic mean of the following frequency distribution :

The sets	5 -	15 -	25 -	35 -	45 -	Total
Frequency	3	4	7	4	2	20

9

El-Sharkia Governorate

Directorate of Education
Dept. of Governmental L. Schools



Answer the following questions :

1 Complete each of the following :

- (1) $[2, 7[\cup \{2, 7\} = \dots\dots\dots$
- (2) If the volume of a cube is 64 cm^3 , then its lateral area = $\dots\dots\dots \text{ cm}^2$
- (3) If (k , 4) satisfies the relation $x + 2y = 15$, then k = $\dots\dots\dots$
- (4) If $a = \sqrt{5} + 1$ and $b = \sqrt{5} - 1$, then $a - b = \dots\dots\dots$
- (5) The mean of the numbers 3 , 4 , 6 , 7 is $\dots\dots\dots$

2 Choose the correct answer :

- (1) The additive inverse of $\sqrt{5} - \sqrt{3}$ is $\dots\dots\dots$
 - (a) $\sqrt{5} - \sqrt{3}$
 - (b) $\sqrt{3} + \sqrt{5}$
 - (c) $-\sqrt{5} - \sqrt{3}$
 - (d) $\sqrt{3} - \sqrt{5}$
- (2) The S.S. of the equation $x^2 + 16 = 0$ in \mathbb{R} is $\dots\dots\dots$
 - (a) $\{4\}$
 - (b) \emptyset
 - (c) $\{4, -4\}$
 - (d) $\{-4\}$
- (3) $(\sqrt{5} + \sqrt{3})^2 (\sqrt{5} - \sqrt{3})^2 = \dots\dots\dots$
 - (a) 4
 - (b) 2
 - (c) 8
 - (d) 3
- (4) The slope of any line parallel to x-axis equals $\dots\dots\dots$
 - (a) 1
 - (b) undefined
 - (c) -1
 - (d) zero
- (5) If $5x = 35$, then $2x + 1 = \dots\dots\dots$
 - (a) 7
 - (b) 15
 - (c) 8
 - (d) 71

3 [a] Find the value of : $\sqrt{50} - \sqrt{8} + 2\sqrt{\frac{1}{2}} - \sqrt{18}$

[b] If $x = \frac{4}{3 + \sqrt{5}}$ and $y = 3 + \sqrt{5}$ Prove that : x and y are conjugate numbers
 , then find the value of : $(x + y)^2$

Algebra and Statistics

4 [a] If $A =] - 2, 6]$ and $B = [4, \infty[$, use the number line to find :

(1) $A \cup B$

(2) $A \cap B$

[b] If the volume of a sphere is $36 \pi \text{ cm}^3$. Find the length of its radius, then calculate its total area ($\pi = 3.14$)

5 [a] Graph the linear relation : $y = 2x - 1$

[b] Solve in \mathbb{R} the inequality : $x + 2 \leq 3x + 2 < x + 16$

[c] Find the mean of the following data :

Sets	20 -	30 -	40 -	50 -	60 -	70 -	Total
Frequency	10	15	22	25	20	8	100

10 El-Dakahlia Governorate

Math's Supervision (E.L.S)



Answer the following questions :

1 Complete the following :

(1) $[-5, 9] - \{-5, 9\} = \dots\dots\dots$

(2) The S.S. of the equation : $x^3 + 8 = 0$ in \mathbb{R} is $\dots\dots\dots$

(3) If the mode of 14, 9, $x + 5$, 9 and 14 is 9, then $x = \dots\dots\dots$

(4) The slope of the straight line parallel to x -axis is $\dots\dots\dots$

(5) If the volume of the sphere is $\frac{1}{6} \pi \text{ cm}^3$, then its radius length = $\dots\dots\dots$

2 Choose the correct answer :

(1) If $x = 5 + \sqrt{3}$ and $y = 5 - \sqrt{3}$, then $x - y = \dots\dots\dots$

(a) 10

(b) -10

(c) $\sqrt{6}$

(d) $2\sqrt{3}$

(2) If the order of the median of the set of values is the fourth, then the number of values is $\dots\dots\dots$

(a) 8

(b) 10

(c) 7

(d) 9

(3) $(1 + \sqrt{7})(1 - \sqrt{7}) = \dots\dots\dots$

(a) 2

(b) -4

(c) $-2\sqrt{7}$

(d) -6

(4) If A (2, -2) and B (1, 4), then the slope of $\overrightarrow{AB} = \dots\dots\dots$

(a) -2

(b) 2

(c) -6

(d) $-\frac{1}{2}$

(5) The mean of the values 3, 7, 8, 2 is $\dots\dots\dots$

(a) 2

(b) 4

(c) 5

(d) 6

3 [a] Simplify to the simplest form : $2\sqrt{18} + \sqrt[3]{54} - 12\sqrt{\frac{1}{2}} - 5\sqrt[3]{16}$

[b] If $X = [-2, 5]$ and $Y =]2, \infty[$

Find : (1) $X \cap Y$

(2) $Y - X$

4 [a] Find in \mathbb{R} the S.S. of the inequality : $-9 \leq -3x + 2 < 17$

[b] If $x = \sqrt{7} + \sqrt{6}$ and $y = \frac{1}{\sqrt{7} + \sqrt{6}}$

(1) Prove that : x and y are conjugate. (2) Find : the numerical value of $x^2 - y^2$

5 [a] Graph : $y + 2x = 4$ Does the point $(-1, 6)$ belong to the straight line ?

[b] Using the following distribution , find the arithmetic mean :

Sets	10 -	20 -	30 -	40 -	50 -
Frequency	6	14	21	24	10

11 Ismailia Governorate

Directorate of Education
El-Manar Language School



Answer the following questions :

1 Complete the following :

(1) $[-1, 5] -]-1, 5[= \dots\dots\dots$

(2) If $(k, 5)$ satisfies the relation : $2y + 2x = 8$, then $k = \dots\dots\dots$

(3) The S.S. of the equation $x^3 + 125 = 0$ in \mathbb{R} is $\dots\dots\dots$

(4) The additive inverse of $\sqrt{7} + \sqrt{3}$ is $\dots\dots\dots$

(5) If the dimensions of a rectangle is $(\sqrt{11} + 2)$ cm. and $(\sqrt{11} - 2)$ cm. , then its area = $\dots\dots\dots$ cm²

2 Choose the correct answer :

(1) If the mode of the values 8 , 7 , 8 , 5 , $x - 5$, 5 is 8 , then $x = \dots\dots\dots$

(a) 8

(b) 10

(c) 5

(d) 13

(2) The slope of the straight line passing through the two points $(-2, 2)$ and $(-8, 5)$ is $\dots\dots\dots$

(a) $-\frac{7}{10}$

(b) $\frac{10}{7}$

(c) $-\frac{6}{12}$

(d) -2

Algebra and Statistics

(3) If the volume of a cube is 27 cm^3 , then the sum of edges of this cube is cm.

- (a) 36 (b) 3 (c) 12 (d) 27

(4) The median of the values 31, 13, 9, 60, 1, 45, 4 is

- (a) 60 (b) 13 (c) 31 (d) 163

(5) $]-\infty, 0] = \dots\dots\dots$

- (a) \mathbb{R}_+ (b) \mathbb{R}_-
(c) set of non positive real numbers. (d) set of non negative real numbers.

[3] [a] Find the simplest form of : $\sqrt[3]{54} - \frac{1}{2}\sqrt[3]{16} + \sqrt[3]{-2}$

[b] If $x = \sqrt{5} + \sqrt{3}$ and $y = \frac{2}{\sqrt{5} + \sqrt{3}}$, find the value of : $\frac{x+y}{xy}$

[4] [a] Find the S.S. in \mathbb{R} of the inequality :

$-2 < 3x + 7 \leq 10$ and represent it on the number line.

[b] If $X =]-\infty, 5]$ and $Y =]1, 9[$ Find using the number line :

- (1) $X \cap Y$ (2) $X \cup Y$ (3) $X - Y$ (4) \bar{X}

[5] [a] If the volume of a sphere is $288\pi \text{ cm}^3$ find its area.

[b] The following table shows the frequency distribution of marks of 40 students in an algebra exam :

Sets	5 -	15 -	25 -	35 -	45 -	Total
Frequency	7	9	12	x	4	40

(1) Find the value of x

(2) Find the arithmetic mean.

12 Port Said Governorate

Educational Directorate
Math inspection



Answer the following questions :

[1] Choose the correct answer :

(1) The multiplicative inverse to the number $\frac{3}{\sqrt{2}}$ is

- (a) $\frac{\sqrt{2}}{3}$ (b) $\frac{\sqrt{3}}{2}$ (c) $\frac{\sqrt{2}}{2}$ (d) $2\sqrt{3}$

(2) The solution set of the equation : $x^3 = 8$ in \mathbb{R} is

- (a) \emptyset (b) $\{2\}$ (c) $\{-2\}$ (d) $\{0\}$

(3) $\mathbb{Q} \cup \mathbb{Q} = \dots\dots\dots$

(a) \emptyset

(b) 0

(c) \mathbb{R}

(d) \mathbb{Z}

(4) The conjugate of the number $\sqrt{2} - \sqrt{3}$ is

(a) $\sqrt{2} + \sqrt{3}$

(b) $\sqrt{3} - 2$

(c) $2 - \sqrt{3}$

(d) $-\sqrt{2} + \sqrt{3}$

(5) The arithmetic mean of the values 2 , 5 , 8 is

(a) 5

(b) 4

(c) 3

(d) 2

2] Complete each of the following :

(1) The mode of the values 5 , 5 , 6 , 4 , 5 is

(2) The slope of the straight line which parallel to the x -axis =

(3) $[2 , 8[\cup \{8\} = \dots\dots\dots$

(4) $\sqrt[3]{\dots\dots\dots} = \sqrt{4}$

(5) A cube of side length 3 cm. , then its volume = cm^3 **3] [a] Find the solution set in \mathbb{R} to the following inequality in the form of an interval :**

$x - 2 > 3$

[b] If $x = \sqrt{3} + \sqrt{2}$ and $y = \sqrt{3} - \sqrt{2}$ Find the value of : $x \times y$ **4] [a] Without using calculator , simplify : $\sqrt{2} + \sqrt{8} - \sqrt{18}$** **[b] Find the slope of the straight line which passes through the two points (2 , 3) and (1 , 2)****5] [a] Write three ordered pairs satisfy the relation : $x + y = 5$** **[b] Find the arithmetic mean for the following frequency distribution :**

Sets	2 -	4 -	6 -	Total
Frequency	2	4	2	8

13 Kafr El-Sheikh Governorate

General Maths Supervision

**Answer the following questions :****1] Choose the correct answer :**

(1) The mean of the values : 21 , 19 , 27 , 3 , 5 is

(a) 90

(b) 32

(c) 18

(d) 15

Algebra and Statistics

(2) If $x = \sqrt{7} - \sqrt{5}$ and $y = \sqrt{7} + \sqrt{5}$, then $(xy)^3 = \dots\dots\dots$

- (a) 4 (b) 6 (c) 8 (d) 9

(3) $[1, 3] - \{1, 3\} = \dots\dots\dots$

- (a) $]1, 3[$ (b) $] - 1, - 3[$ (c) $[1, 3[$ (d) $] - 1, 3[$

(4) $\mathbb{R} = \dots\dots\dots$

- (a) $[0, \infty]$ (b) $] - \infty, \infty[$ (c) $[0, \infty[$ (d) $] - \infty, 0]$

(5) If A (2, 7) and B (5, - 2), then the slope of $\overrightarrow{AB} = \dots\dots\dots$

- (a) - 2 (b) 2 (c) - 3 (d) 3

2 Complete :

(1) The volume of a sphere whose diameter length is 6 cm. = $\dots\dots\dots \pi \text{ cm}^3$

(2) The S.S. for the equation $x^3 + 8 = 0$ in \mathbb{R} is $\dots\dots\dots$

(3) If $(k, 2k)$ satisfies $x + y = 15$, then $k = \dots\dots\dots$

(4) The slope of any line parallel to the x -axis = $\dots\dots\dots$

(5) If the area of one face of a cube = 9 cm^2 , then its volume = $\dots\dots\dots \text{ cm}^3$

3 [a] Simplify : $\sqrt{18} + \sqrt[3]{54} - 3\sqrt{2} - \sqrt[3]{16}$

[b] Find in \mathbb{R} the S.S. of the following inequality : $- 1 \leq 5x + 4 \leq 14$
 , then represent the S.S. on the number line.

4 [a] If $x = \sqrt{6} + \sqrt{5}$ and $y = \sqrt{6} - \sqrt{5}$ Find : $(x + y)^2$

[b] If $X =] - 3, 2]$ and $Y =] - 1, 5]$, then find :

- (1) $X \cap Y$ (2) $X \cup Y$

5 [a] Represent the relation $x + y = 3$ on the coordinate plane.

[b] Find the mean for the following frequency distribution :

Sets	5 -	15 -	25 -	35 -	45 -	Total
Frequency	4	5	6	3	2	20

14

Beni Suef Governorate

Directorate Of Official Language School
Education administration

Answer the following questions :

1 Choose the correct answer :

- ① The irrational number lies between -2 and -1 is
- (a) -3 (b) $-1\frac{1}{2}$ (c) $-\sqrt{3}$ (d) $\sqrt{2}$
- ② $\sqrt[3]{x^6} = \sqrt{\dots}$
- (a) x^3 (b) x^2 (c) x (d) x^4
- ③ $|-5| - |5| = \dots$
- (a) -10 (b) -5 (c) 0 (d) 10
- ④ $(3, 2)$ does not satisfy the relation
- (a) $y + x = 5$ (b) $3y - x = 3$ (c) $y + x = 7$ (d) $x - y = 1$
- ⑤ If the volume of a right circular cylinder is $90\pi \text{ cm}^3$ and its height is 10 cm , then the radius length of its base equals cm.
- (a) 3 (b) 4.5 (c) 5 (d) 9

2 Complete :

- ① If $(a, 3)$ satisfies the relation $2x - y = 7$, then $a = \dots$
- ② $\left(-\frac{5}{7}\right) \times \left(-\frac{7}{5}\right) = \dots$
- ③ If the arithmetic mean of the values $9, 6, 5, 14, x$ is 7 , then $x = \dots$
- ④ The point of intersection of the ascending and descending cumulative frequency curves determines on the set-axis.
- ⑤ If the sum of five numbers equals 30 , then the arithmetic mean of these numbers is

3 [a] Simplify to the simplest form : $\sqrt[3]{-16} + \frac{14}{\sqrt{7}} - \sqrt{28} + \sqrt[3]{54}$ [b] If $x = \frac{4}{3 + \sqrt{5}}$ and $y = 3 + \sqrt{5}$, Find the value of : $x^2 + y^2$ 4 [a] If $X = [-1, 4]$, $Y = [3, \infty[$ and $Z = \{3, 4\}$, find each of the following using the number line :

- ① $X - Y$ ② $Y \cap Z$

[b] Find the solution set of the inequality $3 - 2x \leq 7$ in \mathbb{R} in the form of an interval, then represent the solution on the number line.

Algebra and Statistics

5 [a] Let A (2 , -1) , B (10 , 3) and C (2 , 3) , find the slope of each of : \overrightarrow{AB} and \overrightarrow{AC}

[b] The following table shows the frequency distribution of the weekly bonus of 100 workers in a factory :

Bonus in L.E.	20 -	30 -	40 -	50 -	m -	70 -
Number of workers	10	k	22	26	20	8

- ① Find the value of each of k and m
- ② Graph the frequency histogram , then find the mode value of the weekly bonus.

Assiut Governorate

Badr Language School



Answer the following questions :

1 Choose the correct answer from those given :

- ① If the volume of a cube is 27 cm^3 , then the area of one of its faces is
 (a) 3 cm^2 (b) 9 cm^2 (c) 36 cm^2 (d) 54 cm^2
- ② The S.S. of the equation : $x^2 + 3 = 0$ in \mathbb{R} is =
 (a) \emptyset (b) $\{-\sqrt{3}\}$ (c) $\{\sqrt{3}\}$ (d) $\{-\sqrt{3}, \sqrt{3}\}$
- ③ If $x = \sqrt{3} + 2$ and $y = \sqrt{3} - 2$, then $(xy, x + y) = \dots\dots\dots$
 (a) $(1, 2\sqrt{3})$ (b) $(-1, 2\sqrt{3})$ (c) $(5, 2\sqrt{3})$ (d) $(5, 9)$
- ④ If the median of the set of the values : $k + 1, k + 2, k + 5, k + 4, k + 3$ where k is a positive number is 13 , then $k = \dots\dots\dots$
 (a) 2 (b) 5 (c) 10 (d) 13
- ⑤ If the mode of the set of values : 4 , 11 , 8 , $2x$ is 4 , then $x = \dots\dots\dots$
 (a) 2 (b) 4 (c) 6 (d) 8

2 Complete :

- ① If $(-1, 5)$ satisfies the relation $3x + ky = 7$, then $k = \dots\dots\dots$
- ② $[2, 6] - \{2, 6\} = \dots\dots\dots$
- ③ If the arithmetic mean of the values 9 , 6 , 5 , 14 , k is 7 , then $k = \dots\dots\dots$
- ④ The slope of the straight line passing through the two points (2 , 6) and (-1 , 3) is
- ⑤ The multiplicative inverse of the number $\sqrt{3} - \sqrt{2}$ is (in the simplest form)

3 [a] If $x = \sqrt{5} + \sqrt{2}$ and $y = \sqrt{5} - \sqrt{2}$, find the value of : $\frac{x+y}{xy-1}$

[b] Find the S.S. of the inequality : $-5 \leq 2x - 3 < 5$ in \mathbb{R} , then represent it on the number line.

4 [a] Prove that : $\sqrt[3]{128} + \sqrt[3]{16} - 2\sqrt[3]{54} = 0$

[b] Represent graphically the relation : $y = 2 - x$

5 [a] If $X =]-\infty, 2[$ and $Y = [-1, 5]$ find as an intervals using the number line :

① $X \cup Y$

② $X \cap Y$

③ $X - Y$

[b] Find the arithmetic mean of the following frequency distribution :

Sets	5 -	15 -	25 -	35 -	45 -	Total
Frequency	7	10	12	13	8	50